Bibliography on
COLD REGIONS SCIENCE AND TECHNOLOGY

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INTRODUCTION

The *Bibliography on Cold Regions Science and Technology* was first published in 1951 and is a continuing publication of the Cold Regions Bibliography Project in the Science and Technology Division of the Library of Congress. It is sponsored by and prepared for the Cold Regions Research and Engineering Laboratory (formerly Snow, Ice and Permafrost Research Establishment) of the U.S. Army Corps of Engineers. Volumes 1-15 were issued as the *Bibliography on Snow, Ice and Permafrost,* SIPRE Report 12. Beginning with volume 16 the designation was changed to CRREL Report 12. With volume 20 the title was changed to *Bibliography on Snow, Ice and Frozen Ground, with Abstracts,* and with volume 23 the current title was adopted.

The present volume contains material accessioned between October 1980 and September 1981. It contains the full citation of 4341 items, in many cases with abstracts. Pt. 2 is an index section divided into author and subject indexes. In the author index principal and joint personal and corporate authors are listed along with the title, date, pagination, and language of the document and the accession number. The subject index is composed of three basic elements: 1) terms taken from a controlled vocabulary based on the *Thesaurus of Engineering and Scientific Terms* (LEX-EJC), 2) free terms added as needed, 3) geographic names, generally entered under countries. The terms are listed in a single alphabetical arrangement, along with title (original, translated, abridged, expanded, or supplied), principal author, date, pagination, and language of pertinent documents, and their accession numbers.

This publication is the result of a coordinated effort. The bibliographic work was done by the Cold Regions Bibliography Project Staff who entered all data on a single computerized data base that accommodates both the *Bibliography on Cold Regions Science and Technology* and the *Antarctic Bibliography,* thus eliminating duplication of effort between the two bibliographies. The data processing, based on MARC II input, was handled by the Library's Automated Systems Office and the photocomposition by the Cataloging Distribution Service.

Geza T. Thuronyi, Head
Cold Regions Bibliography Project
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35-1
Future development of modular construction for petroleum industry in West Siberia. (O dal'neishem razvitii komplektno-blochnogo stroitel'stva predpriatii neftianoĭ gazovoĭ promyshlennosti Zapadnoĭ Sibiri).
Grech, V I., *Promyshlennoe stroitel'stvo.* May 1980. No 5, p.32-33. In Russian 1 ref
Petroleum industry, Residential buildings, Industrial buildings, Prefabrication, Permafrost beneath structures.

35-2
"Flying cranes" and their opportunities. ("Letaiushchie krany" i ikh vozmozhnosti).
Chernitskiĭ, A V., *Promyshlennoe stroitel'stvo.* Feb 1980. No.2, p 26-27. In Russian 5 refs
Modular construction, Prefabrication, Transportation, Helicopters.

35-3
Organizing construction in the Far North. (Osobennosti organizatsii stroitel'stva v raionakh Kraĭnego Severa).
Tsaliuk, I G., *Promyshlennoe stroitel'stvo.* Jan 1980. No 1, p.13-14. In Russian.
Mining, Petroleum industry, Arctic landscapes, Construction, Permafrost beneath structures.

35-4
Settlement of pile foundations in clayey water-saturated soils. (Osadki svaĭnykh fundamentov v glinistykh vodonasyshchennykh gruntakh).
Troshkova, N D., *Promyshlennoe stroitel'stvo.* Nov 1979, No.11, p.29-30. In Russian.
Foundations, Piles, Clay soils, Models, Settlement (structural).

35-5
Complex organization of snow removal. (Kompleksnaia organizatsiia uborki snega).
Buzunov, Z.T., *Put' i putevoe khoziaĭstvo.* 1980. No.2, p.10-11. In Russian.
Roads, Railroad tracks, Winter maintenance, Snow removal, Equipment.

35-6
Dimensions of frost heave humps. (Razmery puchinnykh erovnosteĭ).
Gritsyk, V I., *Put' i putevoe khoziaĭstvo.* 1980. No 2, p 23-25. In Russian
Roads, Railroads, Frost heave, Countermeasures.

35-7
Frost heave has disappeared. (Puchiny ne poiavliaiutsia).
Lukanin, A M., *Put' i putevoe khoziaĭstvo.* 1980. No 2, p.25. In Russian.
Railroads, Embankments, Foundations, Frost heave, Countermeasures.

35-8
Thermal and filtration regimes of the Ust'-Khantai river-bed earth dam during first operation years of the hydroelectric power plant. (Temperaturnyĭ i fil'tratsionnyĭ rezhim ruslovoĭ plotiny Ust'-Khantaĭskoĭ GES v pervye gody ekspluatatsii).
Kronik, IA.A., et al, *Energeticheskoe stroitel'stvo.* June 1980. No.6, p.52-55. In Russian. 4 refs.
Kadkina, E L., Skoblin, G.A
Electric power, Hydraulic structures, Earth dams, Rock fills, Frost penetration, Thermal regime, Seepage.

35-9
Analyzing hydrothermal processes in the river-bed dam of the Ust'-Khantai power plant. (Analiz temperaturno-vlazhnostnykh protsessov v iadre ruslovoĭ plotiny Ust-Khantaĭskoĭ GES).
Khagleev, E.P., et al, *Energeticheskoe stroitel'stvo.* June 1980. No.6, p 55-58. In Russian. 2 refs.
Khagleev, F.P.
Hydraulic structures, Earth dams, Electric power, Permafrost beneath structures.

35-10
Core of the Ust'-Khantai hydroelectric plant dam. (O sostoianii iadra uzlovoĭ plotiny Ust'-Khantaĭskoĭ GES).
Kuperman, V L., et al, *Energeticheskoe stroitel'stvo.* June 1980. No.6, p.58-61. In Russian. 3 refs.
Myznikov, IU.N.
Hydraulic structures, Earth dams, Permafrost beneath structures, Design, Cold weather construction.

35-11
All-Union conference on climate, relief and human activities. Abstracts of the papers, Pt.1. (Tezisy dokladov, Chast' 1).
Vsesoiuznoe soveshchanie Klimat, rel'ef i deiatel'nost' cheloveka, Kazan', 1978, Kazan', Kazanskiĭ universitet, 1978, 155p., In Russian For selected abstracts 35-12 through 35-22
Dedkov, A.P., ed.
Deltas, Alpine landscapes, Snow erosion, Permafrost weathering, Frost weathering, Topographic features, Nivation, Rock streams, Thermokarst, Naleds, Aerial surveys, Shore erosion, Arctic Ocean.

35-12
Problems of the relations between climatic zones and exogenic relief formation. (Sovremennye problemy zonal'nosti ekzogennogo rel'efoobrazovaniia).
Asecv, A A., et al, Vsesoiuznoe soveshchanie Klimat, rel'ef i deiatel'nost' cheloveka, Kazan', 1978 Tezisy dokladov Chast' 1 (Conference on climate, relief and human activities. Abstracts of the papers, Pt.1) edited by A P Dedkov, Kazan', Kazanskiĭ universitet, 1978, p.9-21, In Russian 23 refs
Vedenskaia, I.E., Korzhuev, S.S., Timofeev, D.A
Geocryology, Topography, Nivation, Permafrost weathering, Thermokarst, Soil erosion, Cryogenic soils, Slope processes, Solifluction.

35-13
Development of gullies and ravines due to nival-fluvial processes under different climatic conditions. (Razvitie nival'no-fluvial'nykh ovragov i balok v razlichnykh klimaticheskikh uslovnakh).
Liubimov, B.P., Vsesoiuznoe soveshchanie Klimat, rel'ef i deiatel'nost' cheloveka, Kazan', 1978. Tezisy dokladov Chast' 1 (Conference on climate, relief and human activities. Abstracts of the papers, Pt.1) edited by A P. Dedkov, Kazan', Kazanskiĭ universitet, 1978, p.71-73, In Russian.
Nivation, Meltwater, Gullies, Tundra, Alpine landscapes.

35-14
Permafrost weathering in relation to subarctic morphogenesis in Northeastern Yakutia. (Osobennosti vyvetrivaniia v usloviiakh mnogoletnemerzlykh porod v sviazi s problemoĭ subarkticheskogo morfolitogeneza (na primere Severo-Vostochnoĭ IAkutii)).
Loginova, I E., et al, Vsesoiuznoe soveshchanie Klimat, rel'ef i deiatel'nost' cheloveka, Kazan', 1978. Tezisy dokladov Chast' 1 (Conference on climate, relief and human activities Abstracts of the papers, Pt.1) edited by A.P. Dedkov, Kazan', Kazanskiĭ universitet, 1978, p 93-94, In Russian
Amichba, T.M.
Subarctic landscapes, Permafrost weathering, Periglacial processes, Slope processes, Solifluction, Permafrost hydrology.

35-15
Northern badlands, exogenic paradox of Arctic regions. (Severnye bedlendy Ekzogennyĭ paradoks Arktiki).
Korzhuev, S.S., Vsesoiuznoe soveshchanie Klimat, rel'ef i deiatel'nost' cheloveka, Kazan', 1978. Tezisy dokladov Chast' 1 (Conference on climate, relief and human activities. Abstracts of the papers, Pt.1) edited by A.P. Dedkov, Kazan', Kazanskiĭ universitet, 1978, p.95-96, In Russian.
Shore erosion, Deltas, Ground ice, Ice veins, Permafrost weathering, Gullies, Thermokarst.

35-16
Development of exogenic geologic processes in different structural-tectonic and climatic areas of the Baykal Amur railroad area. (Osobennosti razvitiia ekzogennykh geologicheskikh protsessov v razlichnykh strukturno-tektonicheskikh i klimaticheskikh regionakh zony BAMa).
Lekhatinov, A.M., Vsesoiuznoe soveshchanie Klimat, rel'ef i deiatel'nost' cheloveka, Kazan', 1978. Tezisy dokladov Chast' 1 (Conference on climate, relief and human activities Abstracts of the papers, Pt 1) edited by A.P. Dedkov, Kazan', Kazanskiĭ universitet, 1978, p.99-101, In Russian.
Permafrost distribution, Geocryology, Permafrost hydrology, Thermokarst, Frost heave, Solifluction, Baykal Amur railroad.

35-17
Spaceborne methods of studying naleds in relation to the development of the Baykal Amur railroad area. (Aerokosmicheskie metody izucheniia naledeĭ v sviazi s narodnokhoziaĭstvennymi planami osvoeniia zony BAMa).
Gavrilov, A B., et al, Vsesoiuznoe soveshchanie Klimat, rel'ef i deiatel'nost' cheloveka, Kazan', 1978. Tezisy dokladov Chast' 1 (Conference on climate, relief and human activities Abstracts of the papers, Pt 1) edited by A P Dedkov, Kazan', Kazanskiĭ universitet, 1978, p 101-102, In Russian.
Topchiev, A G.
Site surveys, Naleds, Aerial surveys, Spaceborne photography, Baykal Amur railroad.

35-18
Possibilities of stimulating thermokarst phenomena in the Baykal Amur railroad area. (Termokarst i vozmozhnost' aktivizatsii ego v zone BAMa).
Viatkina, L IU., et al, Vsesoiuznoe soveshchanie Klimat, rel'ef i deiatel'nost' cheloveka, Kazan', 1978 Tezisy dokladov Chast' 1 (Conference on climate, relief and human activities. Abstracts of the papers, Pt.1) edited by A.P. Dedkov, Kazan', Kazanskiĭ universitet, 1978, p.103-104, In Russian
Khabibullina, F S
Permafrost beneath structures, Ground ice, Human factors, Paludification, Thermokarst, Baykal Amur railroad.

35-19
Rock stream formation in the area of the South Yakutian Task Economic Complex. (Osobennosti protsessov kurumoobrazovaniia v raione IUzhno IAkutskogo territorial'noproizvodstvennogo kompleksa).
Tiurin, A I., et al, Vsesoiuznoe soveshchanie Klimat, rel'ef i deiatel'nost' cheloveka, Kazan', 1978. Tezisy dokladov Chast' 1 (Conference on climate, relief and human activities Abstracts of the papers, Pt 1) edited by A P Dedkov, Kazan', Kazanskiĭ universitet, 1978, p 104-106, In Russian
Poltev, N.F.
Rock streams, Frost weathering, Nivation, Snow erosion, Fracturing, Frost shattering, Ground ice, Ice mechanics, Flow rate.

35-20
Cryomorphogenesis in Transbaikal steppes. (Kriomorfogenez v stepnom Zabaĭkal'e).
Bazhenova, O I., Vsesoiuznoe soveshchanie Klimat, rel'ef i deiatel'nost' cheloveka, Kazan', 1978. Tezisy dokladov Chast' 1 (Conference on climate, relief and human activities. Abstracts of the papers, Pt.1) edited by A P Dedkov, Kazan', Kazanskiĭ universitet, 1978, p 106-108, In Russian
Steppes, Geocryology, Sporadic permafrost, Frost weathering, Snow erosion, Topographic features, USSR—Transbaikal.

35-21
Nivation and the formation of nival niches in bald mountains of North Transbaikal and the Baykal Lake area. (Nivatsiia i formirovanie nival'nykh nish (na primere gol'tsov Pribaĭkal'ia i Severnogo Zabaĭkal'ia)).
Vyrkin, V.B., Vsesoiuznoe soveshchanie Klimat, rel'ef i deiatel'nost' cheloveka, Kazan', 1978. Tezisy dokladov Chast' 1 (Conference on climate, relief and human activities Abstracts of the papers, Pt 1) edited by A.P. Dedkov, Kazan', Kazanskiĭ universitet, 1978, p 152-154, In Russian
Alpine landscapes, Landscape development, Landscape types, Nivation, Frost weathering, Topographic features, USSR—Transbaikal.

35-22
Morphogenesis in the bald peak zone of mountains. (K probleme morfogeneza v gol'tsovom poiase gor).
Nikonova, R I., et al, Vsesoiuznoe soveshchanie Klimat, rel'ef i deiatel'nost' cheloveka, Kazan', 1978. Tezisy dokladov Chast' 1 (Conference on climate, relief and human activities Abstracts of the papers, Pt 1) edited by A P Dedkov, Kazan', Kazanskiĭ universitet, 1978, p.154-155, In Russian
Ishchenko, A A.
Alpine landscapes, Landscape development, Nivation, Landscape types, Frost weathering, Topographic features.

35-23
Stationary cloud chamber for measuring atmospheric ice nuclei concentrations. (Statsionarnaia kamera dlia izmerenna kontsentratsii atmosfernykh ledianykh iaderĭ).
Aksenov, M IA., et al, *Moscow. Tsentral'naia aerologicheskaia observatoriia. Trudy.* 1980. Vol 137, p 118-122. In Russian with English summary.
Cloud chambers, Ice nuclei, Aerosols, Cloud seeding.

35-24
SALIA-1 cloud chamber designed by the Central Aerological Observatory for airborne measurements of ice nuclei concentration. (Samoletnaia kamera TsAO dlia izmerenia kontsentratsii ledianykh iader (SALIA-1)).
Aksenov, M.IA., et al. *Moscow. Tsentral'naia aerologicheskaia observatoriia. Trudy*, 1980. Vol.137, p.123-127. In Russian with English summary 5 refs
Vychuzhanina, M.V., Miroshnichenko, V.I., Solov'ev, A.D.
Cloud seeding, Aerosols, Ice nuclei, Measuring instruments, Airborne equipment, Cloud chambers.

35-25
Surface measurements of atmospheric ice nuclei concentrations in the area of hail-cloud modification activities in Moldavia. (Nazemnye izmereniia kontsentratsii atmosfernykh ledianykh iader v raione provedeniia protivogradovykh rabot v Moldavii).
Potapov, E.I. *Moscow. Tsentral'naia aerologicheskaia observatoriia. Trudy*, 1980. Vol 137, p 128-132. In Russian with English summary 3 refs.
Hail prevention, Supercooled clouds, Cloud seeding, Aerosols, Ice nuclei, Measuring instruments.

35-26
Ice nuclei concentrations measured from helicopters. (Vertoletnye izmereniia kontsentratsii ledianykh iader).
Vychuzhanina, M.V., et al. *Moscow. Tsentral'naia aerologicheskaia observatoriia. Trudy*, 1980. Vol.137, p.133-137. In Russian with English summary 3 refs.
Miroshnichenko, V.I., Solov'ev, A.D., Tolstov, V.N.
Cloud seeding, Aerosols, Ice nuclei, Measuring instruments, Airborne equipment.

35-27
Atlases of hydrometeorological phenomena especially dangerous for sea navigation. (Atlasy osobo opasnykh gidrometeorologicheskikh iavlenii dlia obespecheniia bezopasnosti moreplavaniia).
Korniushin, O.G., et al. *Moscow. Vsesoiuznyi nauchno-issledovatel'skii institut gidrometeorologicheskoi informatsii mirovogo tsentra dannykh. Trudy*, 1980. Vol.64, p 3-7. In Russian.
Tiurin, A.P.
Ice navigation, Charts, Ship icing, Icing rate.

35-28
Dangerous hydrometeorological phenomena in the Baltic and North seas. (Opasnye gidrometeorologicheskie iavlenia v Severnom i Baltiiskom moriakh).
Korniushin, O.G., *Moscow. Vsesoiuznyi nauchno-issledovatel'skii institut gidrometeorologicheskoi informatsii mirovogo tsentra dannykh. Trudy*, 1980. Vol 64, p 8-13. In Russian 11 refs.
Weather forecasting, Ice navigation, Air temperature, Wind velocity, Ship icing, Icing rate.

35-29
Probability and duration of wind velocities dangerous for navigation in the North Atlantic Ocean. (Veroiatnost' i prodolzhitel'nost' opasnykh dlia navigatsii skorostei vetra v Severnoi Atlantike).
Birman, B.A., et al. *Moscow. Vsesoiuznyi nauchno-issledovatel'skii institut gidrometeorologicheskoi informatsii mirovogo tsentra dannykh. Trudy* 1980. Vol 64, p.14-37. In Russian. 5 refs.
Klen, L.A., Parmuzina, T.A.
Weather forecasting, Navigation, Wind velocity, Storms.

35-30
Extreme wind speeds in the North Pacific. (K voprosu o maksimal'nykh skorostiakh vetra v severnoi chasti Tikhogo okeana).
Gorbach, L.V. *Moscow. Vsesoiuznyi nauchno-issledovatel'skii institut gidrometeorologicheskoi informatsii mirovogo tsentra dannykh. Trudy*, 1980. Vol.64, p 38-53. In Russian. 40 refs.
Weather forecasting, Navigation, Wind velocity, Storms, Analysis (mathematics).

35-31
Peculiarities of ice distribution in the Danish Strait. (Nekotorye osobennosti raspredelenia l'da v Datskom prolive).
Kogan, B.A., et al. *Moscow. Vsesoiuznyi nauchno-issledovatel'skii institut gidrometeorologicheskoi informatsii mirovogo tsentra dannykh. Trudy*, 1980. Vol.64, p 54-60. In Russian. 5 refs.
Zuev, A.N.
Sea ice, Drift, Ice navigation, Ice reporting, Ice conditions.

35-32
Snowmelt run off estimate from the Beas catchment in the Himalayas using energy balance techniques.
Dadoo, V.J., et al. *Archiv fur Meteorologie, Geophysik und Bioklimatologie Ser.B.* 1978, 26(2/3), p 183-192. In English with German summary. 10 refs.
Shrivaikar, V.V.
Snowmelt, Runoff, Glacier melting, Heat balance, Meteorological factors, Computer applications.

35-33
New analysis of measurements of snow evaporation made by H. Köhler at Haldde Observatory during the winter 1920-1921. (Eine neue Analyse von Hilding Köhlers Messungen der Schneeverdunstung auf dem Haldde-Observatorium aus dem Winter 1920/1921).
Lauscher, F. *Archiv fur Meteorologie, Geophysik und Bioklimatologie Ser.B*, 1978, 26(2/3), p 193-198. In German with English summary 5 refs.
Snow evaporation, Water vapor, Wind velocity, Measurement.

35-34
Prudhoe Bay Project; Final environmental impact statement. *U.S Federal Energy Regulatory Commission. Office of Pipeline and Producer Regulation. Environmental impact statement*, July 1980. FERC-/EIS 0009, 416p., Refs. p.209-217.
Permafrost preservation, Gas pipelines, Environmental impact, Fuel transport, Research projects, Meteorological data, United States—Alaska—Prudhoe Bay.

35-35
Studies in snow and ice (A collection of student research papers and essays).
Roulet, N.T., ed, Trent student geographer, Vol 8, Peterborough, Ontario, Trent University Geographical Society, 1980, 193p., Refs. passim. For individual papers see 35-36 through 35-50.
Snow cover distribution, Snow depth, Snow water equivalent, Snow density, Ice cover thickness, Ice conditions, Sea ice, Lake ice, River ice.

35-36
Climate and snowcover in Schefferville, Quebec, winter 1978-1979.
Strickland, N., Studies in snow and ice, edited by N.T Roulet Trent student geographer, Vol.8, Peterborough, Ontario, Trent University Geographical Society, 1980, p 17-22, 7 refs
Snow cover distribution, Snow depth, Snow water equivalent, Snow density, Meteorological data.

35-37
Snowcover variation with vegetation type in the Peterborough area.
Paul, P., et al. Studies in snow and ice, edited by N.T Roulet. Trent student geographer, Vol 8, Peterborough, Ontario, Trent University Geographical Society, 1980, p.23-35, 14 refs.
O'Neil, L.
Snow depth, Vegetation factors, Snow water equivalent, Snow density, Snow cover distribution.

35-38
Role of vegetation on the disposition of snowfall on a mixed forested watershed in the Kawartha Lakes region of east central Ontario.
Mathers, T.J., Studies in snow and ice, edited by N.T Roulet Trent student geographer, Vol 8, Peterborough, Ontario, Trent University Geographical Society, 1980, p.36-50, 21 refs.
Snowfall, Snow accumulation, Vegetation factors, Snow depth, Snow cover distribution, Forest land, Watersheds, Runoff, Snowmelt.

35-39
Analysis of the relationship of snow depth, water equivalent and density in the Elizabeth Lake basin, Labrador.
Outerbridge, K., Studies in snow and ice, edited by N.T Roulet. Trent student geographer, Vol 8, Peterborough, Ontario, Trent University Geographical Society, 1980, p 51-61, 4 refs.
Snow depth, Snow water equivalent, Snow density, Vegetation factors, Tundra, Lichens, Lakes.

35-40
Snow depth distribution around spruce trees in the Chamonix Valley, France.
Roulet, N.T., Studies in snow and ice, edited by N.T Roulet. Trent student geographer, Vol.8, Peterborough, Ontario, Trent University Geographical Society, 1980, p.62-67, 8 refs.
Snow depth, Snow cover distribution, Vegetation factors, Trees (plants).

35-41
Development of snowcover on a lake in the vicinity of Peterborough, Ontario.
McCaskell, P.C., Studies in snow and ice, edited by N.T Roulet Trent student geographer, Vol 8, Peterborough, Ontario, Trent University Geographical Society, 1980, p.71-88, 12 refs
Snow cover distribution, Lake ice, Snow depth, Snow density, Snow water equivalent, Snow stratigraphy.

35-42
Characteristics of snow distribution on Elizabeth Lake, Labrador.
Sagriff, L., Studies in snow and ice, edited by N.T Roulet Trent student geographer, Vol.8, Peterborough, Ontario, Trent University Geographical Society, 1980, p 89-99, 10 refs
Snow cover distribution, Snow depth, Snow water equivalent, Snow stratigraphy, Wind factors, Topographic effects.

35-43
Cover development on Elizabeth Lake, Labrador, with special reference to black ice.
Russell, B., Studies in snow and ice, edited by N.T Roulet. Trent student geographer, Vol 8, Peterborough, Ontario, Trent University Geographical Society, 1980, p 100-109, 5 refs
Lake ice, Snow cover distribution, Ice cover thickness, Thermal regime.

35-44
Comparative study of ice regimes during the freeze-up period on the Indian River, near Peterborough, Ontario.
Price, J., Studies in snow and ice, edited by N.T Roulet Trent student geographer, Vol 8, Peterborough, Ontario, Trent University Geographical Society, 1980, p.110-120, 13 refs
River ice, Ice conditions, Ice formation, Freezeup, Hydrography, Dams, Meteorological factors.

35-45
Ice cover characteristics of two small lakes in the Peterborough area.
Heron, R., Studies in snow and ice, edited by N.T Roulet Trent student geographer, Vol 8, Peterborough, Ontario, Trent University Geographical Society, 1980, p 121-132, 11 refs
Lake ice, Ice cover thickness, Water flow, Flow rate.

35-46
Relationship between a lake ice and snowcover and zooplankton distribution.
Roulet, N.T., et al. Studies in snow and ice, edited by N.T. Roulet Trent student geographer, Vol 8, Peterborough, Ontario, Trent University Geographical Society, 1980, p 133-148, 36 refs
Wolfe, B.R.
Lake ice, Snow cover distribution, Plankton, Light transmission, Solar radiation, Ice optics, Snow optics, Marine biology.

35-47
Winter oxygen loss in three southern Ontario lakes.
Jackson, M.B., Studies in snow and ice, edited by N.T Roulet Trent student geographer, Vol 8, Peterborough, Ontario, Trent University Geographical Society, 1980, p.149-159, 31 refs.
Icebound lakes, Ice cover thickness, Oxygen, Snow depth, Water chemistry, Variations, Snow water equivalent, Snow cover effect.

35-48
Snow in the biotic environment.
Moffatt, D., Studies in snow and ice, edited by N.T Roulet. Trent student geographer, Vol 8, Peterborough, Ontario, Trent University Geographical Society, 1980, p.163-168, 26 refs
Snow cover effect, Vegetation, Ecology, Snow depth, Plants (botany).

35-49
Sea ice: its characteristics, distribution and role in human affairs.
Ferguson, N.B., Studies in snow and ice, edited by N.T Roulet. Trent student geographer, Vol 8, Peterborough, Ontario, Trent University Geographical Society, 1980, p 169-176, 12 refs
Sea ice distribution, Ice physics, Water temperature, Density (mass/volume), Salinity, Ice mechanics, Ice structure, Meteorological factors, Ice navigation, Damage.

35-50
Glaciological research at Trent University with a bibliography of faculty and student publications, 1968-1980.
Adams, W.P., Studies in snow and ice, edited by N.T Roulet. Trent student geographer, Vol.8, Peterborough, Ontario, Trent University Geographical Society, 1980, p.178-193, Refs. p.185-193.
Glaciology, Research projects, Bibliographies, Glacier surveys, Ice surveys, Snow surveys, Permafrost, Ground ice.

35-51
Arctic technology. *Offshore*, May 1980, 40(5), p.145-218
Offshore drilling, Artificial islands, Ice conditions, Offshore structures, Ice islands, Fuel transportation, Icebreakers.

35-52
Mass balance studies on Kongma Glacier, Khumbu Himal.
Ikegami, K., et al, *Seppyo*, 1978, Special Issue No 40, p.12-16, 8 refs. Also issued in Nagoya, Japan University. Water Research Institute. Collected papers on sciences of atmosphere and hydrosphere, 1978, Vol.16, No.15.
Inoue, J.
Glacier mass balance, Glacier flow, Snowfall, Glacier ablation, Snow accumulation.

35-53
Stratigraphic studies of the Gyajo Glacier, Khumbu Himal.
Fushimi, H., *Seppyo*, 1978, Special Issue No.40, p.17-20, 4 refs. Also issued in Nagoya, Japan. University. Water Research Institute. Collected papers on sciences of atmosphere and hydrosphere, 1978, Vol.16, No.16.
Glacier surveys, Stratigraphy, Snow accumulation, Ice formation.

35-54
Observation of snow particles at Hidden Valley, Mukut Himal.
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Snowflakes, Snow pellets, Snow crystal structure, Microstructure, Particles.

35-55
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Ageta, Y., Inoue, J.
Snow crystal structure, Microstructure, Snowfall, Artificial snow, Variations.

35-56
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Glacial lakes, Rock mechanics, Freezing, Bottom sediments, Lake ice, Dislocation (materials).

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Sizikov, A.I., ed, Vladivostok, 1977, 132p., In Russian For selected papers see 35-58 and 35-59. Refs. passim.
Ufimtsev, G.F., ed.
DLC GB438.R9G47
Geocryology, Theories, Permafrost origin, Geomorphology, Alpine landscapes, Landscape development, Rock streams.

35-58
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Geocryology, Theories, Permafrost origin, Topography, Geomorphology, Bibliographies.

35-59
Rock stream formation and general trends in the development of topography in the Far East. [Kurumoobrazovanie i obshchaia tendentsiia razvitiia rel'efa Dal'nego Vostoka].
Skryl'nik, G.P., Geomorfologiia i neotektonika gornykh oblastei Dal'nego Vostoka (Geomorphology and neotectonics of mountain areas in the Far East) edited by A.I. Sizikov and G.F. Ufimtsev, Vladivostok, 1977, p 86-88, In Russian. 15 refs.
Geocryology, Topography, Alpine landscapes, Landscape development, Rock streams.

35-60
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Khomiakova, Z.P.
Cement admixtures, Petroleum industry, Wells, Drilling, Permafrost, Cement hardening.

35-61
Heat release of plugging cement hardening at low and subzero temperatures. [Teplovydelenie tamponazhnykh smesei tverdeiushchikh pri nizkoi polozhitel'noi i otritsatel'noi temperaturakh],
Batalov, D.M., et al, *Zapadno-Sibirskii nauchno-issledovatel'skii geologorazvedochnyi neftianoi institut. Trudy*, 1978, Vol.129, p 46-50, In Russian 4 refs.
Gorskii, A.T., Lepnev, E.N.
Petroleum industry, Wells, Permafrost, Drilling, Cement admixtures, Heat transfer, Cement hardening.

35-62
Pressure kinetics during freezing of dispersed systems in a closed space. [Kinetika davleniia pri zamorazhivanii dispersnykh sistem v zamknutom ob"eme].
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Gorskii, A.T., Kudriavtsev, E.A
Petroleum industry, Permafrost, Drilling, Wells, Freeze thaw cycles, Cements, Thermal regime, Temperature measurement.

35-63
"Nedra" sampler with suspended core lifter for development test wells. [Otbor kerna na otsenochnykh skvazhinakh snariadom "Nedra" s kernopriemnoi truboi na podvesnoi operei].
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Petroleum industry, Drilling, Permafrost, Coring, Core samplers.

35-64
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Danilov, I.D., ed, Moscow, Universitet, 1979, 135p., In Russian For selected articles see 35-65 through 35-67. Refs. passim.
DLC GC85.2.A68I85
Plains, Pleistocene, Glacial deposits, Moraines, Marine deposits, Ice rafting, Bottom sediment, Subsea permafrost, Permafrost origin, Geocryology, Slope processes, Solifluction.

35-65
Role of cryogenic-eluvial processes in the formation of alluvium and slope deposits in the North Chukotskiy Peninsula. [Rol' kriogeliuvirovaniia v formirovanii sklonovykh i alliuvial'nykh otlozhenii Severnoi Chukotki].
Kolesnikov, S.F., Issledovaniia pribrezhnykh ravnin i shel'fa arkticheskikh morei (Studying coastal plains and shelves of Arctic seas) edited by I.D. Danilov, Moscow, Universitet, 1979, p 68-74, In Russian. 8 refs
Geocryology, Slope processes, Solifluction, Alluvium, Active layer, Permafrost depth, USSR—Chukotskiy Peninsula.

35-66
Engineering-geological characteristics of coastal shelf deposits in the southeastern part of the Laptev Sea. [Inzhenerno-geologicheskaia kharakteristika shel'fa iugo-vostochnoi chasti moria Laptevykh].
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Bottom sediment, Subsea permafrost, Permafrost origin, Permafrost physics, USSR—Laptev Sea.

35-67
Origin of moraine-like strata in plains of the North. [O genezise tolshch morenopodobnykh otlozhenii ravnin Severa].
Danilov, I.D., Issledovaniia pribrezhnykh ravnin i shel'fa arkticheskikh morei (Studying coastal plains and shelves of Arctic seas) edited by I.D. Danilov, Moscow, Universitet, 1979, p 97-135, In Russian. 36 refs.
Plains, Pleistocene, Glacial deposits, Moraines, Marine deposits, Estuaries, Lacustrine deposits, Ice rafting.

35-68
Rock pressure in main and preparatory shafts. [Gornoe davlenie v kapital'nykh i podgotovitel'nykh vyrabotkakh].
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Zvorygin, L.V., ed.
DLC TN292.G596
Mines (excavations), Timber, Supports, Steel structures, Permafrost.

35-69
Performance of combined timber under different permafrost conditions. [Izuchenie rabotosposobnosti kombinirovannoi krepi v razlichnykh merzlotnykh usloviiakh].
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Taraskin, IU.S., Skuba, V.N
DLC TN292.G596
Mines (excavations), Supports, Timber, Permafrost.

35-70
Selecting parameters of metallic arch sets for Magadan mines. [Issledovanie i vybor parametrov metallicheskoi arochnoi krepi na shakhtakh Magadanskoi oblasti].
Moroz, V.F., Gornoe davlenie v kapital'nykh i podgotovitel'nykh vyrabotkakh (Rock pressure in main and preparatory shafts) edited by A.P. Shirokov and L.V. Zvorygin, Novosibirsk, 1977, p 154-155, In Russian
Mines (excavations), Supports, Steel structures, Permafrost.

35-71
Calculating water accumulation in the glacier ice-moraine complex during ablation periods allowing for heat balance of its different surfaces. [Raschet nakopleniia vody v lednikovo-morennom komplekse za abliatsionnyi period s uchetom osobennostei teplovogo balansa ego razlichnykh poverkhnostei].
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Mountain glaciers, Glacial deposits, Glacier ablation, Glacial lakes, Mudflows, Moraines.

35-72
Scientific basis of controlling avalanche formation and triggering by means of forest reclamation. [Nauchnye osnovy primeneniia lesomeliorativnykh sredstv bor'by protiv obrazovaniia i skhoda snezhnykh lavin].
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Forestry, Land reclamation, Avalanche formation, Avalanche triggering, Protective vegetation.

35-73
Snow accumulation and melting in forested and open land in moist subtropical climate. [Osobennosti nakopleniia i skhoda snega v lesu i na otkrytykh uchastkakh v usloviiakh vlazhnogo subtropicheskogo klimata].
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Snow cover distribution, Snow accumulation, Snow melting, Snow surveys, Snow water equivalent, USSR—Caucasus.

35-74
Performance of continuously reinforced cement-concrete pavements under severe climatic conditions. [Issledovanie raboty nepreryvno armirovannykh tsementobetonnykh pokrytii v usloviiakh rezko kontinental'nogo surovogo klimata].
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Voelkov, V.A.
Roads, Pavements, Reinforced concretes, Thermal regime, Temperature gradients, Freeze thaw cycles.

35-75
Using dispersion analysis for forecasting climatic effects on the spring moisture content of roadbeds. [Primenenie dispersionnogo analiza dlia otsenki vliania pogodnoklimaticheskikh uslovii na vesennuiu vlazhnost' gruntov zemlianogo polotna s tsel'iu ee prognozirovaniia].
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Shesler, A.I.
Roads, Pavements, Roadbeds, Freeze thaw cycles, Soil water migration, Water content.

35-76
Determining depth to the top of ice-bearing rocks on Mars from the morphology of fresh craters. [Opredelenie glubiny zaleganiia l'distykh porod na Marse po morfologii svezhikh kraterov].
Kuz'min, R.O., *Akademiia nauk SSSR. Doklady*, 1980, 252(6), p 1445-1448, In Russian. 14 refs.
Extraterrestrial ice, Mars (planet), Permafrost distribution, Permafrost depth.

35-77
Avalanche cadaster content and the evaluation of avalanche danger. [Lavinnyi kadastr i ego soderzhanie pri otsenke lavinnoi opasnosti].
Zolotarev, E.A., et al, *Moscow. Universitet. Vestnik Seriia 5 Geografiia*, July-Aug 1980, No.4, p.58-64, In Russian. 17 refs.
Laptev, M.N.
Avalanche forecasting, Avalanche formation, Avalanche triggering, Avalanche mechanics, Impact strength.

35-78
Morphoscopic study of moraines in mountain-glacier areas of the Caucasus. [Morfoskopicheskoe issledovanie moren gornoledniковykh raionov Kavkaza].
Orlov, A.V., *Moscow Universitet. Vestnik. Seria 5 Geografiia*, July-Aug. 1980, No 4, p.65-68, In Russian. 10 refs
Mountain glaciers, Glacial erosion, Glacial deposits, Moraines, Geomorphology, USSR—Caucasus.

35-79
Introduction of achievements about the study of bases and foundations on the frozen ground in China.
Zhuo, C., *Glaciology and cryopedology*, Jan. 1980, 2(1), p.1-5, In Chinese.
Frozen ground strength, Foundations, Pressure, Cold weather construction.

35-80
Discussion of Quaternary Ice Age in the middle and east sections of the Qilian Shan.
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Ice age theory, Ice dating, History, Pleistocene.

35-81
Differentiation of some gravels dynamo-texture.
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Gravel, Frozen rocks, Rock mechanics, Rock properties.

35-82
Frozen soil and ground water.
Wen, B., *Glaciology and cryopedology*, Jan. 1980, 2(1), p.21, 4 refs., In Chinese
Frozen ground physics, Soil water migration.

35-83
On the formation and future aspect of glacial mudrock flow in Baltbare gully.
Cai, X., et al, *Glaciology and cryopedology*, Jan. 1980, 2(1), p.22-25, In Chinese.
Li, J., Li, N.
Glacial deposits, Mudflows, Rock mechanics, Glacier flow.

35-84
Recent situation of Baltbare surging glacier, Pakistan.
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Huang, M.
Glacier surges, Mountain glaciers.

35-85
On selection and evaluation of the sources of water supply in the permafrost regions in Ta-Xiao Xing An Ling.
Lin, F., *Glaciology and cryopedology*, Jan 1980, 2(1), p 32-36, In Chinese
Permafrost hydrology, Water supply, Water table.

35-86
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Zhao, L., Wang, J
Sands, Frozen ground strength, Temperature effects, Frozen fines.

35-87
Evidence of climatic fluctuation in Quaternary deposit involution layers.
Tang, Y., *Glaciology and cryopedology*, Jan 1980, 2(1), p.41-43, 3 refs., In Chinese
Periglacial processes, Sediments, Climatic changes, Paleoclimatology, Pleistocene.

35-88
Introduction of a measure of anti-frost heave by drainage ditch in the tunnel.
Nie, F., *Glaciology and cryopedology*, Jan. 1980, 2(1), p.44-45, In Chinese.
Frost heave, Countermeasures, Subsurface drainage.

35-89
Discussion on the research method of water migration in the seasonal frost zone.
Zhon, Y., *Glaciology and cryopedology*, Jan 1980, 2(1), p.46-53, 3 refs., In Chinese.
Permafrost hydrology, Soil water migration, Seasonal freeze thaw, Frozen ground.

35-90
Recent research of snow and ice in the world; Pt.1.
Zhang, X., *Glaciology and cryopedology*, Jan 1980, 2(1), p 54-58, In Chinese.
Snow surveys, Ice surveys, Glaciology, Research projects.

35-91
First International Symposium of Ground Freezing.
Chen, X., *Glaciology and cryopedology*, Jan. 1980, 2(1), p.59, 1 ref., In Chinese.
Frozen ground, Permafrost, Meetings.

35-92
Basic data on main glaciers of China.
Ren, B., *Glaciology and cryopedology*, Jan 1980, 2(1), p 60-61, In Chinese.
Glacier surveys, China.

35-93
Institute of Low Temperature Science, Hokkaido Univeristy.
Wang, C., et al, *Glaciology and cryopedology*, Jan 1980, 2(1), p.62 + figs., In Chinese.
Ma, L.
Low temperature research, Research projects, Permafrost, Frozen ground.

35-94
Rational application of slab and pile foundations beneath block-set structures. [Ratsional'naia oblast' primeneniia plitnykh i svainykh fundamentov pod blochno-komplektnye ustroistva].
Shapiro, V.D., et al, *Stroitel'stvo truboprovodov*, June 1980, No 6, p.4-6, In Russian 2 refs.
Kots, A.N.
Modular construction, Foundations, Plates, Piles, Concrete structures, Reinforced concretes, Clay soils, Bearing strength.

35-95
Task force units in block-set construction. [Brigadnyi podriad v komplektno-blochnom stroitel'stve].
Andriushkin, E.E., *Stroitel'stvo truboprovodov*, June 1980, No 6, p.8-9, In Russian
Pipelines, Buildings, Foundations, Permafrost beneath structures, Cost analysis.

35-96
Perfecting the construction of compressor plants in West Siberia. [Povyshenie effektivnosti sooruzhenia kompressornykh stantsii v Zapadnoi Sibiri].
Lysiuk, V.F., et al, *Stroitel'stvo truboprovodov*, June 1980, No.6, p 18-19, In Russian
Poniatovskii, V.A
Compressors, Gas pipelines, Foundations, Piles, Construction equipment, Cost analysis, Petroleum industry.

35-97
Advisability of using telescopic piles. [Tselesoobraznost' ispol'zovania teleskopicheskikh svai].
Barskii, B.L., *Stroitel'stvo truboprovodov*, June 1980, No.6, p.19-20, In Russian.
Swamps, Peat, Frost penetration, Foundations, Piles, Design, Petroleum industry.

35-98
Disc-cutter excavators for frozen ground. [Razrabotka merzlykh gruntov s pomoshch'iu diskofrezernoi mashiny].
Bobylev, V.A., *Stroitel'stvo truboprovodov*, June 1980, No.6, p 30-31, In Russian.
Earthwork, Equipment, Frozen ground. Excavation.

35-99
Construction of pipeline passages beneath roads. [Ustroistvo perekhodov truboprovodov pod dorogami].
Rudnik, V.F., *Stroitel'stvo truboprovodov*, June 1980, No.6, p.32, In Russian
Petroleum industry, Pipelines, Roads, Embankments, Permafrost beneath structures.

35-100
Polyurethane foam insulation for pipelines. [Primenenie penopoliuretana dlia izoliatsii truboprovodov].
Bulatov, G.A., *Stroitel'stvo truboprovodov*, June 1980, No.6, p 37-38, In Russian
Pipelines, Thermal insulation, Cellular plastics, Low temperature tests.

35-101
Studying heat transfer in natural ground during phase transformations. [Issledovanie teploobmena v estestvennom grunte pri fazovykh perekhodakh].
Bronfenbrener, L.E., et al, *Neftepromyslovoe stroitel'stvo*, 1980, No.6, p 6-8, In Russian 4 refs.
Bronnikova, N.A
Foundations, Frozen ground, Soil freezing, Soil water migration, Phase transformations, Frost penetration, Heat transfer, Analysis (mathematics).

35-102
Strength of concrete at the contact with perennially frozen ground. [Issledovanie prochnostnykh kharakteristik betona pri kontakte s vechnomerzlymi gruntami].
Andreev, V.V., *Neftepromyslovoe stroitel'stvo*, 1980, No 6, p.10-13, In Russian. 1 ref.
Concrete structures, Permafrost beneath structures, Concrete freezing, Concrete strength, Low temperature tests, Laboratory techniques.

35-103
Free convection heat transfer characteristics in a melt water layer.
Yen, Y.-C., *American Society of Mechanical Engineers. Transactions*, Aug 1980, 102(3), MP 1311, p.550-556, 17 refs.
Meltwater, Heat transfer, Convection, Ice water interface, Water temperature, Temperature effects, Ice melting, Analysis (mathematics).
An experimental study was conducted on the formation of a water layer containing a maximum density, its effect on the onset of convection and the heat transfer characteristics of such a system. This water layer was formed by one-dimensional melting (either from below or above) of a cylinder of bubble-free ice. The layer depth at the onset of convection was determined by locating the inflection point on the water layer depth versus time curve, and was compared with layer depth calculated from a linear stability analysis of an identical problem. The results were compared with the analytical work of Veronis and were found to be in excellent agreement. Formation of a constant temperature layer was observed by measuring the water temperature distribution as melting progressed. The constant temperature was found to depend on T(h) (warm plate temperature) for melting from below, but had a weaker dependence for melting from above. The heat flux to the melting surface increased linearly with T(h) for melting from below, but had a weaker dependence for melting from above. Non-dimensional mean temperature profiles of the water layer were found to be in good agreement with those by Adrian for melting from above. In the case of melting from below, the mean temperature profile also fell into a single line with a somewhat higher value in the convection layer

35-104
Protecting embankment slopes from erosion along the Surgut-Urengoy line. (Protivoerozionnaia zashchita otkosov nasypei linii Surgut-Urengoi).
Vorotnikov, V.S., et al. *Transportnoe stroitel'stvo*. July 1980, No 7, p 3-5. In Russian. 3 refs
Railroads, Embankments, Slope stability, Slope protection, Permafrost beneath structures.

35-105
Flexible reinforced concrete pavements, designed by the Central Scientific Research Institute, for the Baykal Amur railroad construction. (Gibkie zhelezobetonnye pokrytiia TsNIISa na BAMe).
Udin, L.N. *Transportnoe stroitel'stvo*. July 1980, No.7, p.17-19. In Russian.
Embankments, Permafrost beneath structures, Slope stability, Slope protection, Pavements, Reinforced concretes, Plates, Baykal Amur railroad.

35-106
Optimal distribution of railroad settlements. (Optimal'noe razmeshchenie zheleznodorozhnykh poselkov).
Akkerman, G.L., et al. *Transportnoe stroitel'stvo*. July 1980, No 7, p 19-20. In Russian
Polevaia, E.V.
Railroads, Construction, Task force.

35-107
Testing experimental drilling assembly UEBR-1000. (Ispytanna eksperimental'noi ustanovki UEBR-1000).
Tokar', M.G., et al. *Transportnoe stroitel'stvo*. July 1980, No.7, p.26-27. In Russian
Drills, Drilling, Permafrost.

35-108
Snow evaporation in the Caucasus. (Isparenie so snezhnogo pokrova na Kavkaze).
Gvakharia, V.K., *Geograficheskoe obshchestvo SSSR. Izvestna*. July-Aug. 1980. 112(4), p 337-341. In Russian. 8 refs.
Snow cover distribution, Snow density, Snow depth, Snow evaporation, Charts, USSR—Caucasus.

35-109
Aerial photography in the revision of large-scale soil maps in the non-chernozem zone. (Primenenie aerosnimkov dlia revizii krupnomasshtabnykh pochvennykh kart v nechernozemnoi zone).
Monakhov, A.K., *Geograficheskoe obshchestvo SSSR. Izvestiia*. 1980, 112(4), p 355-356. In Russian. 2 refs.
Glacial deposits, Moraines, Swamps, Peat, Podsol, Soil formation, Aerial surveys, Maps.

35-110
Quaternary geology of the Narssaq area, South Greenland.
Funder, S., *Denmark Grønlands geologiske undersøgelse. Rapport*. 1979, No 86, 24p., 20 refs.
Glacial deposits, Moraines, Glacial erosion, Striations, Topographic features, Geocryology, Slope processes, Solifluction, Greenland—Narssaq River.

35-111
Project Westmar. A shallow marine geophysical survey on the West Greenland continental shelf.
Brett, C.P., et al. *Denmark. Grønlands geologiske undersøgelse Rapport*. 1979, No 87, 29p., 11 refs
Zarudzki, E.F.K.
Geophysical surveys, Ocean bottom, Bottom sediment, Glacial erosion, Icebergs, Measuring instruments, Charts.

35-112
Annual report 1979 and future plans.
National Research Council. Polar Research Board, Washington, D.C., National Academy of Sciences, 1980, 39p
Research projects, Low temperature research.
The report provides a summary of the Board's activities, outlines its terms of reference, organization, and operations; and details some of its future plans. Various committees, through which the Board does its work, are identified, the duties and responsibilities of each are outlined, and some current activities, projects and tasks are noted. Relationships of the Board with Congress are mentioned and the Board's role in the national and international scientific communities is detailed. Attachments list names and affiliations of Board members and staff, representatives to the various SCAR and ICSU committees and working groups of various disciplines, Board publications in 1979 and those in preparation for 1980, and Board and related meetings for the year showing date, location, and overall topic of each

35-113
Variations in water quality during winter in two Yukon rivers with emphasis on dissolved oxygen concentration.
Schreier, H., et al. *Water research*. 1980, 14(9), p 1345-1351, 7 refs.
Erlebach, W., Albright, L.J.
Subglacial observations, Water chemistry, Oxygen, Icebound rivers, Variations, Winter, Nutrient cycle.

35-114
Microbial dynamics of two sub-Arctic Canadian rivers.
Albright, L.J., et al. *Water research*. 1980, 14(9), p.1353-1362, 30 refs
Masuda, K.V., Ennis, G.L., Schreier, H.
Water content, Icebound rivers, Algae, Bacteria, Ice breakup, Seasonal variations.

35-115
Effects of streambank materials additions upon microbial activities of two sub-Arctic Canadian rivers.
Albright, L.J., et al. *Water research*. 1980, 14(9), p.1363-1366, 7 refs
Masuda, K.V., Ennis, G.L
Icebound rivers, Microbiology, Banks (waterways), Sediments, Ice breakup, Pipe laying, Seasonal variations.

35-116
Dynamic structural response of a massive pier.
Lipsett, A.W., et al. *Alberta University, Edmonton Transportation and Surface Water Engineering Division Report*, Sep 1979, SWE-79/04, 47p., 13 refs.
Montgomery, C.J.
Piers, Ice loads, Dynamic loads, Impact strength, Loads (forces), Ice floes, Ice breakup, Offshore structures, Concrete structures.

35-117
On the periglacial mark in permafrost area and the relation between glaciation and periglaciation.
Cui, Z., *Glaciology and cryopedology*. Apr 1980, 2(2), p 1-6, In Chinese.
Periglacial processes, Permafrost physics, Ice wedges, Glaciation.

35-118
New statistics on area of glaciers in China.
Lanzhou Institute of Glaciology and Cryopedology. *Glaciology and cryopedology*. Apr 1980, 2(2), p 7-10. In Chinese.
Glaciers, Statistical analysis, Distribution, China.

35-119
Recent advances of the study on existing glaciers in Qing-Zang Plateau.
Li, J., *Glaciology and cryopedology*. Apr 1980, 2(2), p.11-14, In Chinese.
Glacier surveys, China—Qing-Zang Plateau.

35-120
Recent advances of the study on Quaternary glaciation in Qing-Zang Plateau.
Zheng, B., *Glaciology and cryopedology*. Apr 1980, 2(2), p.15-18, 1 ref., In Chinese.
Glaciation, Glacier surveys, Pleistocene, Paleoclimatology.

35-121
Active layer at the south foot of Tanggula Shan.
Toung, B., et al. *Glaciology and cryopedology*. Apr. 1980, 2(2), p 19-24, 4 refs., In Chinese.
Xie, Y., Toung, B., Wang, J.
Active layer, Seasonal freeze thaw, Geocryology.

35-122
Formation and evolution of permanent ice mound on Qing-Zang Plateau.
An, Z., *Glaciology and cryopedology*. Apr. 1980, 2(2), p.25-30, In Chinese.
Frost mounds, Permafrost physics.

35-123
Characteristics of underground ice in the District of Fenghuo Shan along the Qing-Zang highway.
Li, L., et al. *Glaciology and cryopedology*. Apr 1980, 2(2), p.31-35, In Chinese.
Xing, Z.
Ground ice, Ice composition, Temperature effects.

35-124
Observations of frost heave and frost heaving force in the Jiangcan District, Qiliang Shan.
Chen, X., *Glaciology and cryopedology*. Apr 1980, 2(2), p.36-40, In Chinese
Frost heave, Loads (forces), Pressure.

35-125
Meteorological conditions of mudflow and the probability of forecast at Gu Shiang, Tibet.
Zhang, S., *Glaciology and cryopedology*. Apr. 1980, 2(2), p 41-47, In Chinese
Mudflows, Meteorological factors, Mountains, Forecasting.

35-126
Recent research of snow and ice in the world; Pt.2.
Zhang, X., *Glaciology and cryopedology*. Apr. 1980, 2(2), p 48-52, 1 ref., In Chinese
Snow surveys, Ice surveys, Glaciology, Research projects.

35-127
Introduction of a theory—ice ages controlled by variations of the Earth's orbit.
Xu, Q., *Glaciology and cryopedology*. Apr. 1980, 2(2), p.53-57, In Chinese
Glaciation, Ice age theory, Earth orbits, Variations.

35-128
Discussion about "Permafrost classification for engineering".
Zhang, C., *Glaciology and cryopedology*, Apr 1980, 2(2), p 58-60, 5 refs., In Chinese.
Permafrost physics, Frozen ground mechanics, Frozen ground strength, Soil classification, Engineering.

35-129
Brief recommendation of the Institute of Hydrosphere Science, Nagoya University, Japan.
Gu, G., *Glaciology and cryopedology*. Apr 1980, 2(2) p.61-62, In Chinese
Glaciology, Glacial hydrology, Research projects, Geocryology.

35-130
Arctic and Antarctic: their division into geobotanical areas.
Aleksandrova, V.D., New York, Cambridge University Press, 1980, 247p., Refs p 191-223.
DLC QK474.A4313
Arctic landscapes, Plants (botany), Deserts, Tundra, Classifications, Charts.
The work is divided into the following chapters: division of the Arctic into geobotanical areas, geobotanical regions of the arctic —the tundra region, geobotanical regions of the Arctic the polar deserts, division of the Antarctic into geobotanical areas, conclusions. A list of plant names and a comprehensive index are appended

35-131
U.S. Geological Survey in Alaska: 1980 programs.
Reed, K.M., ed. *U.S. Geological Survey. Circular*. 1980, No.823-A, 112p
Geological surveys, Topographic surveys, Offshore landforms, Water reserves, Mapping, Research projects, United States—Alaska.

35-132
Final supplemental environmental impact statement, Chena River Lakes Project.
U.S. Army Corps of Engineers Alaska District, Anchorage, Alaska, June 1980, 82p + append., 22 refs
Flood control, Environmental impact, Rivers, Channels (waterways), Dams, Navigation, Research projects, United States—Alaska—Chena River.

35-133
Break-up dates for the Yukon River; Pt.1. Rampart to Whitehorse, 1896-1978.
Stephens, C.A., et al, MP 1317, Fairbanks, University of Alaska, Geophysical Institute, Apr 1979, c50 leaves, 10 refs
Fountain, A.G., Osterkamp, T.E.
Ice breakup, Ice deterioration, Ice conditions, Ice navigation, Statistical analysis, United States—Alaska—Yukon River.

35-134
Break-up dates for the Yukon River; Pt.2. Alakanuk to Tanana, 1883-1978.
Stephens, C.A., et al, MP 1318, Fairbanks, University of Alaska, Geophysical Institute, May 1979, c50 leaves, 8 refs.
Fountain, A.G., Osterkamp, T.E.
River ice, Ice breakup, Statistical analysis, Ice navigation, Ice conditions, United States—Alaska—Yukon River.

35-135
Creep and fracture of ice and surface strain measurements on glaciers and sea ice.
Goodman, D.J., Cambridge, University, Christ's College, Mar. 1977, 149p. + plates, Ph.D. thesis Refs p 139-149.
Ice creep, Ice cracks, Ice crystals, Glacier ice, Sea ice, Strains, Ice mechanics, Stress strain diagrams, Ice melting, Recrystallization, Analysis (mathematics), Antarctica—Byrd Station.

Part 1 of the thesis examines the creep and fracture properties of polycrystalline ice, while Pt.2 outlines a new technique for surface strain measurements on glaciers and sea ice. Constitutive equations for each mechanism are presented and used to construct a diagram of deformation mechanism map. The diagram is used to suggest the possible creep mechanisms in the Antarctic ice sheet at Byrd Station and in an ice shelf. Continuous observations were made of surface strain changes on sea ice, glaciers and in a rock tunnel very close to a sliding glacier in Greenland, Baffin Island and the French Alps.

35-136

Polar ice—is it a cause or consequence of climatic changes. (Polarnye l'dy sledstvie ili prichina izmeneniia klimata).
Zakharov, V.F., *Priroda*, Feb. 1980, No.2, p.70-79, In Russian. 6 refs.
Polar regions, Climatic changes, Sea ice, Land ice, Distribution.
The role of polar ice, both sea and continental, in climatic variations is examined. Although the emphasis is on arctic ice and charts and graphs show the extent and area of sea ice in the Southern Ocean as well.

35-137

Seismotectonics and seismicity of the Baykal Amur railroad construction area. (Seismotektonika i seismichnost' raiona stroitel'stva BAM).
Odintsov, M.M., ed, Moscow, Nauka, 1980, 204p., In Russian. For selected papers see 35-138 through 35-143. Refs passim.
Roads, Bridges, Tunnels, Pipes (tubes), Permafrost beneath structures, Taiga, Permafrost hydrology, Earthquakes, Frozen fines, Thixotropy, Human factors, Permafrost transformation, Baykal Amur railroad.

35-138

Provision for engineering, geological and seismic information for the construction of the Baykal Amur railroad. (Baikalo-Amurskaia zheleznodorozhnaia magistral', inzhenerno-geologicheskoe i seismicheskoe obespechenie ee stroitel'stva).
Kalinichev, V.P., Seismotektonika i seismichnost' raiona stroitel'stva BAM (Seismotectonics and seismicity of the Baykal Amur railroad construction area) edited by M.M. Odintsov, Moscow, Nauka, 1980, p.5-7, In Russian.
Bridges, Tunnels, Permafrost beneath structures, Taiga, Earthquakes, Baykal Amur railroad, Research projects.

35-139

Geothermal studies in the Baykal-Angarakan River area of the Baykal Amur railroad. (Geotermicheskie issledovaniia v Baikalo-Angarakanskom raione trassy BAM).
Lysak, S.V., et al, Seismotektonika i seismichnost raiona stroitel'stva BAM (Seismotectonics and seismicity of the Baykal Amur railroad construction area) edited by M.M. Odintsov, Moscow, Nauka, 1980, p.139-153, In Russian. 13 refs.
Platonov, L.M., Dorofeeva, R.P., Levitskii, V.IU.
Tunnels, Hot springs, Permafrost hydrology, Permafrost beneath structures, Taliks, Permafrost thermal properties, Permafrost beneath lakes, Baykal Amur railroad, Charts, Faults.

35-140

Engineering and seismic conditions of bridge construction for the Baykal Amur railroad. (Inzhenerno-seismologicheskie usloviia stroitel'stva mostovykh perekhodov v raionakh BAM).
Pavlov, O.V., et al, Seismotektonika i seismichnost' raiona stroitel'stva BAM (Seismotectonics and seismicity of the Baykal Amur railroad construction area) edited by M.M. Odintsov, Moscow, Nauka, 1980, p.164-173, In Russian. 10 refs.
Zarubin, N.E., Pavlenov, V.A., Dzhurik, V.I.
Bridges, Tunnels, Pipes (tubes), Permafrost beneath structures, Dynamic loads, Frozen fines, Earthquakes, Thixotropy, Baykal Amur railroad.

35-141

Evaluating seismic stability of thixotropic ground in the Baykal Amur railroad area. (Ob otsenke seismicheskoi ustoichivosti tiksotropnykh gruntov v raionakh BAM).
Zarubin, N.E., et al, Seismotektonika i seismichnost' raiona stroitel'stva BAM (Seismotectonics and seismicity of the Baykal Amur railroad construction area) edited by M.M. Odintsov, Moscow, Nauka, 1980, p.173-178, In Russian. 6 refs.
Riashchenko, T.G.
Permafrost beneath structures, Frozen fines, Thixotropy, Earthquakes, Baykal Amur railroad.

35-142

Calculating expected ground oscillations from a most dangerous earthquake in the Chara station area of the Baykal Amur railroad. (O raschete ozhidaemykh kolebanii gruntov pri naibolee opasnom zemletriasenii (na primere st. Chara, BAM)).
Sharapov, V.G., Seismotektonika i seismichnost' raiona stroitel'stva BAM (Seismotectonics and seismicity of the Baykal Amur railroad construction area) edited by M.M. Odintsov, Moscow, Nauka, 1980, p.179-190, In Russian. 11 refs.
Buildings, Foundations, Permafrost beneath structures, Earthquakes, Human factors, Baykal Amur railroad, Design.

35-143

Some problems of engineering seismology in the central part of the Udokan Range. (Nekotorye voprosy inzhenernoi seismogeologii tsentral'noi chasti khrebta Udokan).
Nikolaev, V.V., et al, Seismotektonika i seismichnost' raiona stroitel'stva BAM (Seismotectonics and seismicity of the Baykal Amur railroad construction area) edited by M.M. Odintsov, Moscow, Nauka, 1980, p.191-197, In Russian. 10 refs.
Shmotov, A.P.
Permafrost distribution, Permafrost thickness, Earthquakes, Mining, Pits (excavations), Slope processes, Ground ice, Solifluction, USSR—Udokan Range.

35-144

Seismic stability of transport-related structures. (Seismostoikost' transportnykh sooruzhenii).
Napetvaridze, Sh.G., ed, Moscow, Nauka, 1980, 132p., In Russian. For selected papers see 34-3477 and 35-145 through 35-147. Refs passim.
Bridges, Piers, Permafrost beneath structures, Dynamic loads, Earthquakes, Baykal Amur railroad, Design.

35-145

Evaluating seismic stability of bridges allowing for interaction between temporary loads, bridge spans and piers at longitudinal seismic oscillations. (Otsenka seismostoikosti mostov s uchetom vzaimodeistviia vremennoi nagruzki, proletnykh stroenii i opor pri prodol'nykh seismicheskikh kolebaniiakh).
Uzdin, A.M., et al, Seismostoikost' transportnykh sooruzhenii (Seismic stability of transport-related structures) edited by Sh.G. Napetvaridze, Moscow, Nauka, 1980, p.27-40, In Russian. 11 refs.
Shvarts, M.A.
Bridges, Permafrost beneath structures, Dynamic loads, Earthquakes, Baykal Amur railroad, Design.

35-146

Experimental study of dynamic loads exerted by ground on bridge piers. (Eksperimental'noe issledovanie dinamicheskogo davleniia grunta na ustoi mosta).
Murusidze, R.Kh., et al, Seismostoikost' transportnykh sooruzhenii (Seismic stability of transport-related structures) edited by Sh.G. Napetvaridze, Moscow, Nauka, 1980, p.50-55, In Russian.
Danelia, E.V.
Bridges, Piers, Dynamic loads, Earthquakes, Models, Baykal Amur railroad.

35-147

Using blasting in studying seismic stability of rock excavation slopes. (Issledovanie seismostoikosti otkosov skal'nykh vyemok s pomoshch'iu vzryvov).
Tselikov, F.I., et al, Seismotoikost' transportnykh sooruzhenii (Seismic stability of transport-related structures) edited by Sh.G. Napetvaridze, Moscow, Nauka, 1980, p.121-125, In Russian. 1 ref.
Obolenskii, A.N.
Rock excavation, Slope stability, Slope processes, Models, Earthquakes, Blasting, Settlement (structural), Fracturing.

35-148

Methodology of forecasting natural phenomena in Siberia. (Metodicheskie aspekty prognozirovaniia prirodnykh iavlenii Sibiri).
Druzhinin, I.P., ed, Novosibirsk, Nauka, 1980, 144p., In Russian with English table of contents enclosed. Refs p.134-142.
Kukushina, V.P., ed, Reznikova, A.V., ed.
River ice, Lake ice, Water chemistry, Water pollution, Shores, Gullies, Bacteria, Plankton, Human factors, Forest land, Biomass, Landslides, Paludification, Runoff, Seasonal variations, Environmental protection.

35-149

Structure and composition of natural ice. (Stroenie i sostav prirodnykh l'dov).
Savel'ev, B.A., Moscow, Universitet, 1980, 280p. In Russian with English table of contents enclosed. 41 refs.
Sea ice, River ice, Lake ice, Ice shelves, Glacier ice, Land ice, Ice formation, Metamorphism (snow), Ice deterioration, Ice structure, Ice cover strength, Ice physics, Ice composition, Impurities.

35-150

Structure and plant communities in East European forest tundra. (Struktura rastitel'nykh soobshchestv Vostochno-Evropeiskoi lesotundry).
Nomn, B.N., Leningrad, Nauka, 1979, 200p., In Russian with English table of contents enclosed. Refs p.178-197.
Forest tundra, Cryogenic soils, Landscape types, Plant ecology, Ecosystems, Tundra.

35-151

Kink velocities on dislocation in ice; a comment on the Whitworth, Paren and Glen model.
Frost, H.J., et al, *Philosophical magazine*, June 1976, 33(6), p.951-961, 12 refs. For original article see 30-3300.
Goodman, D.J., Ashby, M.F.
Ice crystal structure, Ice physics, Proton transport, Dislocations (materials), Ice electrical properties, Velocity, Mathematical models.

35-152

Handbook for winter road service. (Handbuch für den Strassenwinterdienst).
Ahlbrecht, H., et al, Bonn, Kirschbaum Verlag, Oct 1978, 319p., In German. 67 refs.
Croce, K., Kohler, A.
Snow removal, Ice removal, Road maintenance, Winter maintenance, Equipment, Salting, Heating, Snow fences, Cost analysis.

35-153

Materials availability study of the Dickey-Lincoln dam site.
Merry, C.J., et al, MP 1316, Case studies of applied advanced data collection and management, American Society of Civil Engineers, 1980, p.158-170, Also presented at the 12th International Symposium on Remote Sensing of Environment, Manila, Philippines, April 20-26, 1978.
McKim, H.L., Blackey, E.A.
Earth dams, Site surveys, Geologic structures, Remote sensing, Construction materials, Lakes, Topographic features, Mapping.

35-154

Chemical treatment helps prevent frozen coal.
Esterman, J.R., *Power engineering*, Nov. 1979, 83(11), p.93-94.
Coal, Cold weather operation, Chemical ice prevention, Frozen cargo, Transportation, Mining.

35-155

Oilspill risk analysis for the Kodiak Island (proposed sale 46).
Samuels, W.B., et al, *U.S. Geological Survey, Open-file report*, 1980, No.80-175, 40p. + 22 appends., 6 refs.
Lanfear, K.J., Nakassis, A.
Oil spills, Marine transportation, Petroleum transportation, Environmental impact, Water pollution, United States—Alaska—Kodiak Island.

35-156

Geometric properties of the underside of sea ice.
Rothrock, D.A., et al, *Journal of geophysical research*, July 20, 1980, 85(C7), p.3955-3963, 15 refs.
Thorndike, A.S.
Sea ice, Ice bottom surface, Surface roughness.

35-157

Estimating the surface wind speed over drifting pack ice from surface weather charts.
Feldman, U., et al, *Boundary-layer meteorology*, June 1979, 16(4), p.421-429, 19 refs.
Howarth, P.J., Davies, J.A.
Sea ice, Pack ice, Drift, Wind velocity.

35-158

Model of the planetary boundary layer over a snow surface.
Halberstam, I., et al, *Boundary-layer meteorology*, June 1979, 16(4), p.431-452, 20 refs.
Melendez, R.
Boundary layer, Snow cover effect, Heat transfer, Mathematical models.

35-159
Turbulent heat flux from Arctic leads.
Andreas, E.L., et al. *Boundary-layer meteorology*, Aug. 1979, 17(1), MP 1340, p.57-91, 50 refs
Paulson, C.A., Williams, R.M., Lindsay, R.W., Businger, J.A.
Sea ice, Heat transfer, Polynyas, Turbulent exchange.

35-160
Passive radiometry of the ocean from space—an overview.
McClain, E.P., *Boundary-layer meteorology*, Feb 1980, 18(1), p 7-24, 45 refs.
Spaceborne photography, Radiometry, Sea ice, Water temperature, Ocean currents, Spacecraft.
A brief description of unmanned Earth-observation platforms in space, and their ocean related radiometric instrumentation, is given. Both operational and research-type spacecraft, current and near-future, are discussed. Some recent oceanographic studies and applications are reviewed, including the following topics: sea surface temperature, sea ice, ocean surface roughness and near-surface wind, and ocean color. Satellite imagery and text include outlines of the Antarctic role in various radiometry programs. (Auth. mod.)

35-161
Proceedings, Vol.3.
International Conference on Port and Ocean Engineering Under Arctic Conditions, 5th, Trondheim, Norway, Aug 13-18, 1979, Trondheim, University, 1979, 608p., Refs passim. For selected papers see 35-162 through 35-182. Included are corrections to pap (p.289-292), and discussions, replies and questions (p 319, 338-439 and 496-550).
Sea ice distribution, Remote sensing, Environmental impact, Ocean waves, Ice mechanics, Drift, Offshore structures, Oil spills, Meetings, Shores, Environmental protection.

35-162
Sea ice and icebergs.
Peters, G.R., International Conference on Port and Ocean Engineering Under Arctic Conditions, 5th, Trondheim, Norway, Aug 13-18, 1979. Proceedings, Vol.3, Trondheim, University, 1979, p 41-59, Refs. p.52-56.
Sea ice, Icebergs, Drift, Ice conditions, Ice mechanics, Remote sensing.

35-163
Ice flow through straits.
Pritchard, R.S., et al, International Conference on Port and Ocean Engineering Under Arctic Conditions, 5th, Trondheim, Norway, Aug. 13-18, 1979. Proceedings, Vol.3, Trondheim, University, 1979, p 61-74, 8 refs.
Reimer, R.W., Coon, M.D.
Sea ice, Drift, Ice loads, Stresses, Dynamic loads, Ocean currents, Wind factors, Ice cover, Bering Strait.

35-164
On the drift ice conditions in the Atlantic sector of the Antarctic.
Vinje, T.E., International Conference on Port and Ocean Engineering Under Arctic Conditions, 5th, Trondheim, Norway, Aug. 13-18, 1979. Proceedings, Vol.3, Trondheim, University, 1979, p.75-82, 10 refs.
Sea ice distribution, Drift, Icebergs, Ocean currents, Ice conditions, Remote sensing, Atmospheric circulation, South Atlantic Ocean.
The paper deals with some special features of the sea ice conditions in the Atlantic sector of the Antarctic. The accessibility to various areas is considered. The main oceanic circulation in the area is illustrated by observed drift tracks of icebergs.

35-165
Shorebased radar data for navigation of coastal and restricted ice covered areas with specific examples of Bylot Island, N.W.T., Canada.
Worsfold, R.D., et al, International Conference on Port and Ocean Engineering Under Arctic Conditions, 5th, Trondheim, Norway, Aug 13-18, 1979. Proceedings, Vol 3, Trondheim, University, 1979, p.83-98, 3 refs
Parashar, S.K., Ramseier, R.O., Steltner, H.A.R.
Ice navigation, Radar echoes, Remote sensing, Sea ice distribution, Ice conditions, Spacecraft.

35-166
Assessment of SAR for oil pollution surveillance in the ice environment.
Parashar, S.K., et al, International Conference on Port and Ocean Engineering Under Arctic Conditions, 5th, Trondheim, Norway, Aug 13-18, 1979. Proceedings, Vol.3, Trondheim, University, 1979, p.99-123, 41 refs.
Stapleton, G., Worsfold, R.D., O'Neil, R., Gray, L.
Oil spills, Pollution, Sea ice, Ice conditions, Radar echoes.

35-167
Positioning in polar regions.
Østerholt, P.A., International Conference on Port and Ocean Engineering Under Arctic Conditions, 5th, Trondheim, Norway, Aug. 13-18, 1979. Proceedings, Vol 3, Trondheim, University, 1979, p 125-137, 3 refs
Ice navigation, Radio echo soundings, Sea ice distribution, Ships, Polar regions, Positioning, Antarctica—Weddell Sea.
This paper deals with positioning in polar regions. A summary of available positioning systems and methods is given. This includes satellite systems, shore based radio navigation systems and acoustic systems both permanent and mobile. The possibilities and limitations of the various systems for different types of work are discussed. The positioning aspect of deploying and recovering current rigs in the Weddell Sea is described as experienced by the Norwegian Antarctic Research Expedition.

35-168
Eastern Arctic marine environmental study program.
Löken, O.H., International Conference on Port and Ocean Engineering Under Arctic Conditions, 5th, Trondheim, Norway, Aug. 13-18, 1979. Proceedings, Vol 3, Trondheim, University, 1979, p 139-152, 51 refs.
Environmental protection, Offshore drilling, Drift, Icebergs, Ice conditions.

35-169
Activities at the Norwegian Meteorological Institute in support of operations in polar regions.
Haland, L., International Conference on Port and Ocean Engineering Under Arctic Conditions, 5th, Trondheim, Norway, Aug 13-18, 1979. Proceedings, Vol 3, Trondheim, University, 1979, p.153-178, 6 refs
Drift, Ice accretion, Icing, Offshore structures, Wind factors, Air temperature, Statistical analysis, Meteorological data.

35-170
Wave-wave and wave-current interactions in deep water.
Kjeldsen, S.P., International Conference on Port and Ocean Engineering Under Arctic Conditions, 5th, Trondheim, Norway, Aug. 13-18, 1979. Proceedings, Vol.3, Trondheim, University, 1979, p 179-200, 14 refs
Ocean waves, Ocean currents, Interfaces, Polar regions.

35-171
Shore crossing techniques for offshore pipelines in Arctic regions.
Marcellus, R.W., et al, International Conference on Port and Ocean Engineering Under Arctic Conditions, 5th, Trondheim, Norway, Aug 13-18, 1979. Proceedings, Vol 3, Trondheim, University, 1979, p 201-215, 11 refs.
Palmer, A.C.
Pipelines, Offshore structures, Ice scoring, Shores, Permafrost preservation, Environmental protection.

35-172
Coal loading pier in Svea, Svalbard.
Instanes, B., International Conference on Port and Ocean Engineering Under Arctic Conditions, 5th, Trondheim, Norway, Aug. 13-18, 1979. Proceedings, Vol 3, Trondheim, University, 1979, p.217-232
Coal, Loading, Piers, Subsea permafrost, Ice conditions, Ice physics, Drift, Ice mechanics, Design criteria.

35-173
Underground technology for offshore hydrocarbon development in Antarctica.
Splettstoesser, J.F., International Conference on Port and Ocean Engineering Under Arctic Conditions, 5th, Trondheim, Norway, Aug. 13-18, 1979. Proceedings, Vol 3, Trondheim University, 1979, p 233-245, 17 refs.
Offshore drilling, Sea ice distribution, Ice conditions, Icebergs, Offshore structures, Marine geology, Ice scoring, Petroleum industry.
As the world's known reserves of oil and gas become depleted, more attention is being given to remote and hostile offshore areas where continental shelves hold the potential of vast amounts of hydrocarbons. One of the last frontiers is offshore Antarctica, where estimates of oil and gas resources range from 20 to 45 billion barrels of oil and 80 to 115 trillion cubic feet of natural gas. However, no reserves are proved as yet due to a lack of sufficient geophysical information, although commercial marine surveys have already begun. The unusual environment of Antarctic waters dictates that specialized techniques be applied for exploration, development and exploitation of offshore oil and gas. Sea ice conditions limit shipping and other offshore activities to only 3 months per year, iceberg presence requires semisubmersible structures for exploration drilling and possibly production, and iceberg bottom scouring requires subsurface production systems in relatively shallow water (< 500 m). Another possible means of dealing with sea ice and iceberg conditions is to use modified underground mining technology for undersea development of oil and gas resources. Access would be from a mine shaft from the surface through an offshore floating platform, a submarine entrance or a tunnel seaward from a land base. Thus production activities would be extended year-round. Drilling and recovery would be implemented in underground (subsea) rooms, with oil and gas piped through tunnels to onshore facilities or to tanker ships during the summer when ice-free conditions exist. (Au h.)

35-174
Spilled oil retention potential—Beaufort Sea coast of Alaska.
Nummedal, D., et al, International Conference on Port and Ocean Engineering Under Arctic Conditions, 5th, Trondheim, Norway, Aug 13-18, 1979. Proceedings, Vol 3, Trondheim, University, 1979, p 247-253, 5 refs
Ruby, C.H.
Oil spills, Environmental impact, Shores, Coastal topographic features, Sediments, Vegetation, Aerial surveys, United States—Alaska.

35-175
Oil in moving pack—laboratory study.
Metge, M., et al, International Conference on Port and Ocean Engineering Under Arctic Conditions, 5th, Trondheim, Norway, Aug 13-18, 1979. Proceedings, Vol 3, Trondheim, University, 1979, p 225-264, 7 refs
Telford, A.S.
Oil spills, Pack ice, Ice floes, Pollution, Tests, Crude oil, Exploration.

35-176
Design of mound breakwaters.
Bruun, P., et al, International Conference on Port and Ocean Engineering Under Arctic Conditions, 5th, Trondheim, Norway, Aug. 13-18, 1979. Proceedings, Vol.3, Trondheim, University, 1979, p.265-274, 8 refs
Günbak, A.
Ocean waves, Storms, Countermeasures, Offshore structures, Polar regions, Design, Breakwaters.

35-177
Random waves attack on a composite breakwater.
Yamamoto, M., et al, International Conference on Port and Ocean Engineering Under Arctic Conditions, 5th, Trondheim, Norway, Aug 13-18, 1979. Proceedings, Vol 3, Trondheim, University, 1979, p 275-288, 6 refs
Endo, T., Hasegawa, A., Tsunakawa, K.
Ocean waves, Wave propagation, Countermeasures, Offshore structures, Design, Storms, Tests, Breakwaters.

35-178
"Pack ice and icebergs"—report to POAC 79 on problems of the seasonal sea ice zone: an overview.
Weeks, W.F., et al, MP 1320, International Conference on Port and Ocean Engineering Under Arctic Conditions, 5th, Trondheim, Norway, Aug 13-18, 1979. Proceedings, Vol 3, Trondheim, University, 1979, p 320-337
Denner, W.W., Paquette, R.G
Pack ice, Icebergs, Sea ice distribution, Ice conditions, Ice physics, Remote sensing, Research projects, Seasonal variations, Sea water.
This paper reports the results of the Seasonal Sea Ice Zone (SSIZ) Workshop, held February 26 1979 in Monterey California. The purpose of the workshop was to summarize the existing knowledge of the SSIZ, to identify significant problem areas, and discuss approaches to finding solutions. The purpose of the report is to make the participants of POAC 79 aware of the important research problems of the SSIZ identified at the Workshop.

35-179
Evolution of ice research for offshore pack ice operations.
O'Rourke, J.C., International Conference on Port and Ocean Engineering Under Arctic Conditions, 5th, Trondheim, Norway, Aug 13-18, 1979. Proceedings, Vol 3, Trondheim, University, 1979, p 441-495, 5 refs.
Offshore drilling, Pack ice, Ice conditions, Ice drills, Ice forecasting, Oil spills, Countermeasures, Ice islands, Research projects.

35-180
Ice and iceberg studies using state-of-the-art remote sensing.
Lowry, R.T., et al. International Conference on Port and Ocean Engineering Under Arctic Conditions, 5th, Trondheim, Norway, Aug. 13-18, 1979. Proceedings, vol.3, Trondheim, University, 1979, p.551-569, 9 refs.
Inkster, D.R., Kirby, M.E.
Sea ice distribution, Icebergs, Drift, Ice conditions, Remote sensing, Oil spills, Countermeasures, Icebreakers.

35-181
Research priorities for Arctic ships.
Voelker, R.P., International Conference on Port and Ocean Engineering Under Arctic Conditions, 5th, Trondheim, Norway, Aug. 13-18, 1979. Proceedings, Vol.3, Trondheim, University, 1979, p.571-581, 8 refs.
Ice navigation, Marine transportation, Ships, Sea ice distribution, Natural resources, Research projects, Icebreakers, Ice breaking.

35-182
Report to POAC 79 from the Symposium on Research in the Labrador Coastal and Offshore Region.
Denner, W.W., International Conference on Port and Ocean Engineering Under Arctic Conditions, 5th, Trondheim, Norway, Aug. 13-18, 1979. Proceedings, Vol.3, Trondheim, University, 1979, p.583-602.
Offshore drilling, Natural resources, Oil spills, Countermeasures, Meetings, Research projects.

35-183
Report on United States antarctic research activities, 1979-1980; United States antarctic research activities planned for 1980-1981.
National Research Council. Polar Research Board. *National Academy of Sciences-National Research Council Report to SCAR*, June 1980, No.22, 90p., Refs. p.64-78.
Research projects, Antarctica.
This report contains information on the U.S. Antarctic Research Program completed during the period February 1979 to March 1980, in progress from March 1980 to October 1980, and planned from October 1980 through September 1981. Activities in the following areas are summarized: atmospheric sciences, earth sciences, biology, research vessel operations and information programs. World Data Center A subcenters, members of the Polar Research Board, their addresses and telephone numbers, and U.S. delegates and members of SCAR subgroups are listed.

35-184
Deep Freeze 1980 Cruise Report.
U.S. Coast Guard, Wilmington, N.C., Apr. 1980, 72p.
Garrett, R.R.
Ships, Logistics, Ice breaking, Ice navigation, Antarctica.
The *Northwind*, no longer a young vessel, performed support for Deep Freeze for what her commanding officer recommends be the last time. She successfully performed her assignment in spite of a number of maintenance and repair problems, the captain credits the crew with great diligence and dedication. *Northwind* opened the "backdoor" channel to McMurdo, while the larger icebreaker *Polar Sea* commenced main channel breaking. She also spent some time in the Ross Sea in support of a sea bird study.

35-185
Cryogenic phenomena in Kazakhstan and Central Asia. (Kriogennye iavlenila Kazakhstana i Srednei Azii).
Gorbunov, A.P., ed. Yakutsk, Institut merzlotovedeniia, 1979, 145p., In Russian. For individual papers see 35-186 through 35-195. Refs. passim.
Rock glaciers, Geocryology, Mountain glaciers, Glacier ice, Electromagnetic prospecting, Mapping, Cryogenic soils, Soil formation, Periglacial processes, USSR—Zailiyskiy Alatau.

35-186
Rock glaciers of Zailiyskiy Alatau. (Kamennye gletchery Zailiiskogo Alatau).
Gorbunov, A.P., Kriogennye iavlenia Kazakhstana i Srednei Azii (Cryogenic phenomena in Kazakhstan and Central Asia) edited by A.P. Gorbunov, Yakutsk, Institut merzlotovedenia, 1979, p.5-34, In Russian. Refs. p.31-34.
Rock glaciers, Slope processes, Rock streams, Glacier ice, Glacier formation, Ice mechanics, Alpine landscapes, Alimentation, Ablation.

35-187
Movements of some rock glaciers in Zailiyskiy Alatau. (O dvizhenii nekotorykh kamennykh gletcherov Zailiiskogo Alatau).
Titkov, S.N., Kriogennye iavlenia Kazakhstana i Srednei Azii (Cryogenic phenomena in Kazakhstan and Central Asia) edited by A.P. Gorbunov, Yakutsk, Institut merzlotovedenia, 1979, p.34-42, In Russian. 3 refs.
Rock glaciers, Glacier oscillation, Ice mechanics, Flow rate, Alpine landscapes, Velocity measurement, Surveys.

35-188
Plastic deformations and faulting in the lacustrine deposits of the Pamirs and Tien Shan cryolithozone and their paleogeographic significance. (Plastichеskie i razryvnye deformatsii v otlozhenniakh ozer kriolitozony Pamira i Tian'-Shania i ikh paleogeograficheskoe znachenie).
Ermolin, E.D., Kriogennye iavlenia Kazakhstana i Srednei Azii (Cryogenic phenomena in Kazakhstan and Central Asia) edited by A.P. Gorbunov, Yakutsk, Institut merzlotovedenia, 1979, p.42-66, In Russian. 42 refs.
Geocryology, Frozen fines, Lacustrine deposits, Permafrost structure, Ice veins, Plastic deformation, Alpine landscapes, Faulting, USSR—Pamirs, USSR—Tien Shan.

35-189
Geocryologic altitudinal zonation of northern Tien Shan. (Geokriologicheskaia vysotnaia poiasnost' Severnogo Tian'-Shania).
Gorbunov, A.P., et al. Kriogennye iavlenia Kazakhstana i Srednei Azii (Cryogenic phenomena in Kazakhstan and Central Asia) edited by A.P. Gorbunov, Yakutsk, Institut merzlotovedenia, 1979, p.67-83, In Russian. 19 refs.
Severskii, E.V.
Permafrost distribution, Continuous permafrost, Sporadic permafrost, Frozen ground temperature, Seasonal freeze thaw, Frost penetration, USSR—Tien Shan.

35-190
Calculating vertical temperature gradients in Central Asian and Kazakhstan mountains. (Raschet vertikal'nykh temperaturnykh gradientov v gornykh raionakh Srednei Azii i Kazakhstana).
Blagoveshchenskii, V.P., Kriogennye iavleniia Kazakhstana i Srednei Azii (Cryogenic phenomena in Kazakhstan and Central Asia) edited by A.P. Gorbunov, Yakutsk, Institut merzlotovedenia, 1979, p.83-87, In Russian. 9 refs.
Air temperature, Alpine landscapes, Temperature gradients, Altitude, Mapping, Landscape types.

35-191
Formation of cryogenic relief in lake basins of the Pamirs and Tien Shan cryolithozone. (Formirovanie kriogennogo rel'efa v ozernykh kotlovinakh kriolitozony Pamira i Tian'-Shania).
Ermolin, E.D., Kriogennye iavleniia Kazakhstana i Srednei Azii (Cryogenic phenomena in Kazakhstan and Central Asia) edited by A.P. Gorbunov, Yakutsk, Institut merzlotovedenia, 1979, p.88-105, In Russian. 21 refs.
Glacial lakes, Lacustrine deposits, Ground ice, Permafrost structure, Geocryology, Permafrost weathering, Topographic features, Thermokarst, Shore erosion.

35-192
Large scale mapping of cryogenic phenomena in Zailiyskiy Alatau. (Opyt krupnomasshtabnogo kartografirovaniia kriogennykh iavlenii Zailiiskogo Alatau).
Severskii, E.V., Kriogennye iavleniia Kazakhstana i Srednei Azii (Cryogenic phenomena in Kazakhstan and Central Asia) edited by A.P. Gorbunov, Yakutsk, Institut merzlotovedeniia, 1979, p.105-112, In Russian. 13 refs.
Engineering geology, Mapping, Charts, Thermal regime, Frozen rock temperature, Permafrost distribution, USSR—Zailiyskiy Alatau.

35-193
Data obtained with electric sounding of frozen strata in Tien Shan and the Pamirs. (Nekotorye dannye elektrozondirovanii merzlykh tolshch Tian'-Shania i Pamira).
Nemov, A.E., Kriogennye iavleniia Kazakhstana i Srednei Azii (Cryogenic phenomena in Kazakhstan and Central Asia) edited by A.P. Gorbunov, Yakutsk, institut merzlotovedeniia, 1979, p.112-122, In Russian. 2 refs.
Permafrost distribution, Ground ice, Permafrost structure, Electromagnetic prospecting, Alpine landscapes.

35-194
Paleocryogenic microdiapiric structures of Pavlograd region and their role in soil formation. (Paleokriogennye mikrodiapirovye struktury Pavlogradskoi oblasti i ikh rol' v pochvoobrazovanii).
Gorbunova, I.A., Kriogennye iavlenia Kazakhstana i Srednei Azii (Cryogenic phenomena in Kazakhstan and Central Asia) edited by A.P. Gorbunov, Yakutsk, Institut merzlotovedenia, 1979, p.122-130, In Russian. 5 refs.
Frozen fines, Cryogenic soils, Clays, Sands, Loams, Soil formation, Seasonal freeze thaw, Permafrost structure, Paleoecology.

35-195
Traces of periglacial phenomena in the Chaglinka River valley. (Sledy perigliatsial'nykh iavlenii v doline r. Chaglinki).
Meshchikhin, D.A., Kriogennye iavlenia Kazakhstana i Srednei Azii (Cryogenic phenomena in Kazakhstan and Central Asia) edited by A.P. Gorbunov, Yakutsk, Institut merzlotovedenia, 1979, p.131-140, In Russian. 21 refs.
River basins, Valleys, Terraces, Frozen fines, Alluvium, Periglacial processes, Cryogenic structures, Ice veins, Frost shattering.

35-196
Timbering, maintenance and preservation of mining excavations. (Krepleniе, podderzhanie i okhrana gornykh vyrabotok).
Gritsko, G.I., ed. Novosibirsk, 1979, 114p., In Russian. For selected papers see 35-197 through 35-200.
Coal, Permafrost control, Placer mining, Permafrost thermal properties, Ventilation, Shafts (excavations), Timbering, Supports, Walls.

35-197
Stability of mining excavations in Yakutia at above-zero thermal regimes. (Issledovanie ustoichivosti vyrabotok na rudnikakh Iakutii pri polozhitel'nom teplovom rezhimeе).
Tiunin, V.P., Krepleniе, podderzhanie i okhrana gornykh vyrabotok (Timbering, maintenance and preservation of mining excavations) edited by G.I. Gritsko, Novosibirsk, 1979, p.62-64, In Russian.
Coal, Permafrost thermal properties, Ground thawing, Mine shafts, Walls, Stability.

35-198
Stability of excavations adjoining the depleted space in mines of permafrost areas. (Issledovanie ustoichivosti vyrabotok, sopriazhennykh s otrabotannym prostranstvom shakht oblasti mnogoletnei merzloty).
Plesnivtsev, V.V., Krepleniе, podderzhanie i okhrana gornykh vyrabotok (Timbering, maintenance and preservation of mining excavations) edited by G.I. Gritsko, Novosibirsk, 1979, p.64-67, In Russian.
Mining, Timbering, Coal, Supports, Shafts (excavations), Walls, Stability, Permafrost.

35-199
Characteristics of mining excavations in permafrost areas. (Kharakteristika gornykh vyrabotok v usloviiakh mnogoletnei merzloty).
Avksent'ev, I.V., et al. Krepleniе, podderzhanie i okhrana gornykh vyrabotok (Timbering, maintenance and preservation of mining excavations) edited by G.I. Gritsko, Novosibirsk, 1979, p.105-106, In Russian.
Vikulov, M.A., Skuba, V.N.
Coal, Permafrost thermal properties, Mine shafts, Walls, Timbering, Supports.

35-200
Improving mining techniques in coal and placer mines of the North. (Sovershenstvovanie ekspluatatsii vyrabotok na ugol'nykh i rossypnykh shakhtakh Severa).
Avksent'ev, I.V., et al. Krepleniе, podderzhanie i okhrana gornykh vyrabotok (Timbering, maintenance and preservation of mining excavations) edited by G.I. Gritsko, Novosibirsk, 1979, p.106-108, In Russian.
Sherstov, V.A.
Coal, Placer mining, Thermal regime, Ventilation, Permafrost.

35-201
Phytoplankton composition and cropping power in different lake types of the Karelian Isthmus. (Sostav i produktivnost' fitoplanktona raznotipnykh ozer Karel'skogo pereshейka).
Trifonova, I.S., Leningrad, Nauka, 1979, 168p., In Russian with English table of contents enclosed. Refs. p.146-161.
Lakes, Plankton, Algae, Biomass, Plant ecology, Ecosystems, USSR—Karelian Isthmus.

35-202
Offshore drilling of engineering-geological wells. (Morskoe bureme inzhenerno-geologicheskikh skvazhin).
Arkhangel'skii, I.V., Leningrad, Nedra, 1980, 263p. In Russian with English table of contents enclosed 96 refs.
Sea ice, Offshore drilling, Ice cover strength, Drills, Core samplers, Borehole instruments, Recording, Environmental protection.

35-203
Mudflows, No.4. (Selevye potoki, Sbornik 4).
Vinogradov, Iu.B., ed. Moscow, Gidrometeoizdat, 1980, 148p. In Russian. For selected papers see 35-204 through 35-217. Refs. passim.
Kirenskaia, T.L., ed.
Mountain glaciers, Glacial hydrology, Moraines, Glacial lakes, Slope stability, Water erosion, Slope processes, Soil erosion, Mudflows, Sediment transport, Models, Classifications.

35-204
Transport and transport-shear types of mudflow processes. (Transportnyi i transportno-sdvigovyi selevye protsessy).
Vinogradov, Iu.B., Selevye potoki (Mudflows) edited by Iu.B. Vinogradov and T.L. Kirenskaia, Moscow, Gidrometeoizdat, 1980, p.3-19. In Russian. 19 refs.
Soil erosion, Water erosion, Mudflows, Slope stability, Slope processes, Glacial hydrology, Meltwater.

35-205
Mechanism of mudflow formation. (O mekhanizme formirovaniia selevykh potokov).
Stepanov, B.S., Selevye potoki (Mudflows) edited by Iu.B. Vinogradov and T.L. Kirenskaia, Moscow, Gidrometeoizdat, 1980, p.20-23. In Russian. 5 refs.
Water erosion, Mudflows, Flow rate, Suspended sediments, Slope processes.

35-206
Modeling the erosion-shear process. (K voprosu o modeli erozionno-sdvigovogo protsessa).
Stepanov, B.S., Selevye potoki (Mudflows) edited by Iu.B. Vinogradov and T.L. Kirenskaia, Moscow, Gidrometeoizdat, 1980, p.31-35. In Russian. 2 refs.
Mudflows, Soil erosion, Sediment transport, Suspended sediments, Grain size, Slope processes, Models.

35-207
Forecasting rain-induced mudflows. (O prognozirovanii selevykh iavlenii livnevogo proiskhozhdeniia).
Kirenskaia, T.L., Selevye potoki (Mudflows) edited by Iu.B. Vinogradov and T.L. Kirenskaia, Moscow, Gidrometeoizdat, 1980, p.36-45. In Russian. 30 refs.
Rain, Soil erosion, Suspended sediments, Mudflows, Forecasting, Slope processes.

35-208
Classification of mudflow phenomena. (Klassifikatsiia selevykh iavlenii).
Vinogradov, Iu.B., Selevye potoki (Mudflows) edited by Iu.B. Vinogradov and T.L. Kirenskaia, Moscow, Gidrometeoizdat, 1980, p.46-50. In Russian. 19 refs.
Soil erosion, Water erosion, Mudflows, Suspended sediments, Slope processes, Classifications.

35-209
Classification of mudflow formation foci. (K voprosu o klassifikatsii selevykh ochagov).
Khonin, R.V., Selevye potoki (Mudflows) edited by Iu.B. Vinogradov and T.L. Kirenskaia, Moscow, Gidrometeoizdat, 1980, p.51-56. In Russian. 8 refs.
Soil erosion, Water erosion, Mudflows, Suspended sediments, Slope processes, Classifications.

35-210
Mudflows observed in the Bol'shaya Almatinka River basin, Aug. 3-31, 1977. (Selevye iavleniia 3-31 avgusta 1977 g. v basseine r. Bol'shaia Almatinka).
Popov, V.I., et al. Selevye potoki (Mudflows) edited by Iu.B. Vinogradov and T.L. Kirenskaia, Moscow, Gidrometeoizdat, 1980, p.57-63. In Russian.
Mudflows, Mountain glaciers, Moraines, Glacier ablation, Glacial lakes, Shores, Slope processes.

35-211
Causes of mudflow formation in the Issyk River basin. (O prichinakh obrazovaniia selevykh potokov v basseine r. Issyk).
Mochalov, V.P., et al. Selevye potoki (Mudflows) edited by Iu.B. Vinogradov and T.L. Kirenskaia, Moscow, Gidrometeoizdat, 1980, p.64-67. In Russian. 14 refs.
Stepanov, B.S.
Mountain glaciers, Glacial hydrology, Glacial lakes, Glacial rivers, Glacier ablation, Mudflows.

35-212
Mudflow phenomena in the USSR. (Selevye iavleniia na territorii SSSR).
Raushenbakh, I.O., Selevye potoki (Mudflows) edited by Iu.B. Vinogradov and T.L. Kirenskaia, Moscow, Gidrometeoizdat, 1980, p.90-102. In Russian. 17 refs.
Mudflows, Soil erosion, Meltwater, Mountain glaciers, Ablation, Moraines, Slope processes.

35-213
Conditions of runoff formation on moraines of the Malaya Almatinka glaciers and their variations. (Usloviia stoka na morene Maloalmatinskikh lednikov i ikh izmeneniia).
Golubovich, V.A., Selevye potoki (Mudflows) edited by Iu.B. Vinogradov and T.L. Kirenskaia, Moscow, Gidrometeoizdat, 1980, p.103-106. In Russian. 1 ref.
Mountain glaciers, Glacial hydrology, Glacier ablation, Runoff, Moraines, Soil erosion, Mudflows.

35-214
Dynamics of the Chilik Basin lakes and possibilities of their breakthrough. (Dinamika ozer basseina r. Chilik i vozmozhnost' ikh proryva).
Markov, I.N., et al. Selevye potoki (Mudflows) edited by Iu.B. Vinogradov and T.L. Kirenskaia, Moscow, Gidrometeoizdat, 1980, p.107-112. In Russian. 3 refs.
Popov, N.V.
Glacial lakes, Glacier ablation, Moraines, Soil erosion, Glacial hydrology, Mudflows.

35-215
Regimes of morainal lakes and ways of their melioration. (O rezhime morennykh ozer i puttakh ikh meliratsii).
Mochalov, V.P., et al. Selevye potoki (Mudflows) edited by Iu.B. Vinogradov and T.L. Kirenskaia, Moscow, Gidrometeoizdat, 1980, p.113-119. In Russian. 7 refs.
Stepanov, B.S.
Mountain glaciers, Moraines, Glacial lakes, Glacier ablation, Mudflows.

35-216
Experimental study of avalanche-like movements of mudflows. (K eksperimental'nomu issledovaniiu problemy lavinnosti v dinamike selevykh potokov).
Boiarskii, I.IA., Selevye potoki (Mudflows) edited by Iu.B. Vinogradov and T.L. Kirenskaia, Moscow, Gidrometeoizdat, 1980, p.120-126. In Russian. 10 refs.
Mudflows, Glacial hydrology, Soil erosion, Suspended sediments, Slope processes, Impact strength, Avalanche engineering.

35-217
Using gamma radiation in non-contact measurements of mudflow densities. (Ob ispol'zovanii gamma-izlucheniia dlia nekontaktnogo izmereniia plotnosti selevykh potokov).
Stepanova, T.S., Selevye potoki (Mudflows) edited by Iu.B. Vinogradov and T.L. Kirenskaia, Moscow, Gidrometeoizdat, 1980, p.136-140. In Russian. 4 refs.
Mudflows, Density (mass/volume), Measuring instruments, Gamma irradiation.

35-218
Aeromagnetic and radio echo ice-sounding measurements show much greater area of the Dufek intrusion, Antarctica.
Behrendt, J.C., et al. *Science*, Aug. 19, 1980, 209(4460), p.1014-1017. 15 refs.
Drewry, D.J., Jankowski, E., Grim, M.S.
Radio echo soundings, Ice cover thickness, Seismic surveys, Aerial surveys, Antarctica—Dufek Massif.
A combined aeromagnetic and radio echo ice-sounding survey made in 1978 in Antarctica over the Dufek layered mafic intrusion suggests a minimum area of the intrusion of about 50 000 square kilometers, making it comparable in size with the Bushveld Complex of Africa. Comparisons of the magnetic and subglacial topographic profiles illustrate the usefulness of this combination of methods in studying bedrock geology beneath ice-covered areas. Magnetic anomalies range in peak-to-trough amplitude from about 50 nanoteslas over the lowermost exposed portion of the section in the Dufek Massif to about 3600 nanoteslas over the uppermost part of the section in the Forrestal Range. Theoretical magnetic anomalies computed from a model, required normal and reversed magnetizations ranging from 001 to 01 electromagnetic units cu cm. This result is interpreted as indicating that the Dufek intrusion cooled through the Curie isotherm during one or more reversals of the earth's magnetic field. (Auth.)

35-219
Properties and classification of some desert soils in coarse-textured glacial drift in the Arctic and Antarctic.
Bockheim, J.G., *Geoderma*, Aug. 1980, 24(1), p.45-69. 43 refs.
Cryogenic soils, Desert soils, Soil chemistry, Soil structure, Classifications.

Polar Desert soils in the Arctic (66 and 74 N latitude) are contrasted with Cold Desert soils in the Antarctic (77 N). The soils are derived from sandy skeletal glacial drift and have not been influenced by cryoturbation. Pedogenic horizons are limited to a desert pavement (designated D) and to a weak B horizon in the oldest soils of both groups. Solum thickness increases with age in the two soil groups, however, because of a slightly greater amount of soil moisture, the increase in solum thickness is greater for Polar Desert soils. Soils of both groups often contain dry permafrost. The Polar Desert soils at 74 N and most of the Cold Desert soils are neutral to mildly alkaline and the Polar Desert soils at 66 N are strongly to medium acid. Although soluble salts increase with age in soils of both groups, the increase is more marked in the more arid Cold Desert soils. Results from this study of Cold Desert soils and in a survey of the literature show that sodium is the prevalent cation in water extracts of Cold Desert soils and in Polar Desert soils above ca. 80 N. Chloride is the major anion in Cold Desert soils in the McMurdo Sound vicinity and in noncalcareous Polar Desert soils. A scheme contrasting clay-mineral alteration in soils of the two groups is provided. (Auth. mod.)

35-220
Solutions and use of chronofunctions in studying soil development.
Bockheim, J.G., *Geoderma*, Aug. 1980, 24(1), p.71-85. 60 refs.
Soil composition, Soil formation, Geomorphology, Time factor, Models.
Thirty-two chronosequences from 27 areas were selected from the literature for constructing chronofunctions and for correlating rates of change in soil properties with variables representing climate and parent material. The chronosequences originate from areas situated between 66 N and 78 S latitude and represent seven climatic regions ranging from tropical rainy to cold desert and seven types of parent materials including till, aeolian sand, alluvium, mine spoil, volcanic ash, raised beach deposits and mudflows. Fourteen of the chronosequences contain soils which range in age from 0 to 500 yr, seven span a 12,000-yr period, three a 100 000-yr period, and eight a period of greater than one million yr. Three linear and non-linear models were tested on 151 soil properties. (Auth. mod.)

35-221
Modern pollen spectra from the tundra—boreal forest transition in northern Newfoundland, Canada.
Davis, A.M., *Boreas*, 1980, 9(2), p.89-100. 40 refs.
Forest tundra, Pollen, Palynology, Vegetation.

35-222
Sodium chloride solutions used to prevent highway icing. (Miscele liquide di cloruro di sodio impiegate in funzione preventiva antigelo sull'autostrada).
Beretta, M., *Neve international*, June 1980, 22(2), p.17-19. In Italian.
Road icing, Chemical ice prevention, Ice removal, Salting, Solutions.

35-223
Determining maximum snow depth for the purpose of avalanche control structure design. (La determinazione dell'altezza massima di neve per il dimensionamento di un'opera di difesa attiva dalla caduta di valanghe).
Balzaretti, P., *Neve international*, June 1980, 22(2), p.44-46. In Italian.
Avalanche formation, Countermeasures, Avalanche forecasting, Design, Snow depth.

35-224
Freeze-dried and critical-point-dried clay—a comparison.
Murray, R.S., et al. *Soil Science Society of America Journal*, Mar.-Apr. 1980, 44(2), p.232-234. 19 refs.
Quirk, J.P.
Clay soils, Freeze drying, Porosity, Soil water, Distribution.

35-225
Soil development on moraines of Taylor Glacier, lower Taylor Valley, Antarctica.
Pastor, J., et al. *Soil Science Society of America Journal*, Mar.-Apr. 1980, 44(2), p.341-348. 25 refs.
Bockheim, J.G.
Glacial deposits, Moraines, Soil formation, Permafrost, Desert soils, Soil chemistry, Soil composition, Soil erosion, Electrical properties, Geocryology, Antarctica—Taylor Valley.
Soils were examined on moraines deposited by Taylor Glacier in lower Taylor Valley to determine changes in soil properties with time in an environment of extreme cold and aridity and minimal biologic activity. The soils range in age from 200,000 to 2.7-3.5 million years BP. Soil profiles contain a desert pavement over a weakly expressed B horizon, followed by permafrost which may be dry or ice-cemented. The soils are alkaline (pH 7.5 to 9.0) and are enriched in salts. Based on X-ray diffraction, the salts are mirabilite, trehydrite and halite. Electrical conductivity of the salt enriched zone ranges from 2.8 to 9 mmho/cm. Sodium and chloride are the dominant ions in 1:5 soil:water extracts. Ion ratios suggest that the bulk of the salts are of marine aerosol origin. The soils are generally gravelly sands, but the amounts of clay and medium + fine silt increase with soil age. Free iron also increases with age. Secondary clay minerals include montmorillonite, vermiculite, and interstratified layer silicates. The predominant clay mineral weathering process is hydration of mica. The age-soil property

...ations may have been influenced by microclimatic variations, ...revious occurrence of lakes dammed by a westward flowing marine ice sheet, mass wasting processes, and persistent ice-cemented frost table in the solum. The soils are classified as Pergelic Cryorthents, sandy skeletal, mixed, frigid. (Auth.)

35-226
Conditions of landslide formation on clay slopes. (Usloviya formirovaniya opolznevykh ochagov v glinistykh porodakh na sklonakh).
Demchishin, M.G. *Osnovaniya i fundamenty*, 1980, Vol.13, p.34-38. In Russian. 3 refs.
Slope processes, Soil creep, Landslides, Clays, Slope stability.

35-227
Influence of the laying depth of a horizontally loaded foundation on the bearing strength of underlying clays. (Vliianie glubiny zalozheniia fundamenta, nagruzhennogo gorizontal'noi siloi, na nesushchuiu sposobnost' glinistogo osnovaniia).
Ikonin, S.V., et al. *Osnovaniya i fundamenty*, 1980, Vol.13, p.42-47. In Russian. 4 refs.
Ledenev, V.V.
Foundations, Clays, Bearing strength, Rheology, Design.

35-228
Allowing for ultimate equilibrium of grounds in the process of landslide formation. (Ob uchete predel'nogo ravnovesiia gruntov v protsesse obrazovaniia opolznei).
Kas'ianov, V.V., *Osnovaniya i fundamenty*, 1980, Vol.13, p.47-50. In Russian. 7 refs.
Slope processes, Landslides, Slope stability, Soil creep, Design.

35-229
Calculating foundations of situ-cast boreh... on second-order sagging grounds (Raschet fundamentov iz buronabivnykh svai v usloviiakh prosadochnykh gruntov II tipa).
Klepikov, S.N., et al. *Osnovaniya i fundamenty*, 1980, Vol.13, p.53-58. In Russian. ...refs.
Sazko, V.A.
Foundations, Piles, Loess, Soil water ...g... ... settlement (structural).

35-230
Stability of tailing embankments. (K voprosu ustoichivosti nasypei-otvalov).
Oglobin, V.F., et al. *Osnovaniya i fundamenty*, 1980, Vol.13, p.68-71. In Russian. 3 refs.
Gavenko, V.M.
Embankments, Tailings, Slope stability, Soil compaction, Models.

35-231
Development of deformations in loess beneath an experimental foundation. (Issledovaniia protsessa razvitiia deformatsii v lessovom osnovanii opytnogo fundamenta).
Tugaenko, I.F., et al. *Osnovaniya i fundamenty*, 1980, Vol.13, p.85-97. In Russian. 5 refs.
Pasichnichenko, V.G.
Foundations, Loess, Rheology, Elastic properties, Deformation.

35-232
Abramov glacier (Alai Range). Water-ice and heat balance of mountain glacier basins (Ledniki Abramova (Alaiskii khrebet). Vodno-lednikovyi i teplovoi balans gornoledno...kovykh basseinov).
Suslov, V.F., et al. Leningrad, Gidrometeoizdat, 1980, 206p., In Russian with English summary. English table of contents enclosed. 171 refs.
Mountain glaciers, Glacier ice, Heat balance, Mass balance, Glacier alimentation, Glacier ablation, Avalanches, Snowstorms, Snow cover distribution, Metamorphism (snow), Water balance, Glacial hydrology, USSR—Alai Range.

35-233
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Thermal regime, Moisture transfer, Underground pipelines, Ducts, Stefan problem, Phase transformations, Heat transfer, Soil freezing, Thermal insulation, Frozen ground, Porous materials, Unfrozen water content, Hygroscopic water, Capillary ice.

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Petroleum transportation, Underground pipelines, Thermal regime, Frozen ground.

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Kapitonova, T.... Fedoseeva, A.I.
Utilities, Pipelines, ...t ... beneath structures, Heat transfer, Mathematical models.

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Stefan problem, Thermodynamic properties, Phase transformations.

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Porous materials, Water, Adsorption, Phase transformations, Capillary ice.

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Saline soils, Soil freezing, Frost penetration, Unfrozen water content, Phase transformations.

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35-298
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Soil formation, Cryogenic soils, Forest soils, Forest fires, Revegetation, Soil water, Soil chemistry, USSR—Angara River.

35-299
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35-301
Humus and oxalate-soluble forms of sesquioxides in the soils of West Sayan *Pinus cembra* forests. (Gumus i oksalatnorastvorimye formy polutornykh okislov v pochvakh chernevykh kedrovnikov Zapadnogo Saiana).
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Forest soils, Alpine landscapes, Cryogenic soils, Soil chemistry, Snow cover effect, Vegetation factors.

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Taiga, Landscape types, Podsol, Soil chemistry, Cryogenic soils, Soil formation.

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Kanalin, V.G.
Mine shafts, Excavation, Transportation, Ventilation, Permafrost.

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35-308
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Concrete strength, Concrete admixtures, Surfactants, Frost resistance.

35-309
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Pipe laying, Gas pipelines, River crossings, Icebound rivers, Permafrost beneath rivers, Earthwork, Construction equipment.

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Icebound rivers, Icebound lakes, River crossings, Pipe laying.

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Hydraulic structures, Ice loads, Docks, Design.

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Excavation, Earthwork, Equipment, Frozen ground.

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Excavation, Earthwork, Equipment, Frozen ground.

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Tailings, Frozen ground, Excavation, Equipment.

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Mine shafts, Excavation, Artificial freezing.

35-326
Number of boreholes required in artificial freezing of ground at greater depths. [O kolichestve skvazhin pri zamorazhivanii gruntov na bol'shikh glubinakh],
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DLC QE39.G455
Ice sheets, Ice shelves, Glacier ice, Sedimentation.
The Antarctic continental margin is presently characterized by three different glacial regimes. These include continental margins where the ice sheet is grounded on the continental shelf, those whose inner shelves are covered by floating ice shelves, and those which bound mountainous coasts where valley glaciers debouch directly into the sea. Piston cores from all three types were examined. Sediment composition, supply, and transport in various parts of the Ross and Weddell Seas are discussed. (Auth. mod.)

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Logistics, Military operation, Antarctica.
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Bituminous concretes, Pavements, Surface roughness, Cracking (fracturing), Surface properties, Fatigue (materials), Climatic factors, Thermal effects, Analysis (mathematics), Forecasting.

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Bitumens, Thermal effects, Cements, Physical properties.

35-335
Remote estimation of the properties of sea ice, ice core analysis, Beaufort Sea, March 1979.
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35-336
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35-342
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35-343
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35-344
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35-345
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35-346
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35-347
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Military facilities, Electric power, Equipment, Winter maintenance.

35-350
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Gerasimova, L
Earthwork, Military equipment, Excavation, Frozen ground.

35-351
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35-353
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Pervii, A S., et al, *Shakhtnoe stroitel'stvo*, Dec 1979, No 12, p.24-25, In Russian
Bukhvalov, A I
Mining, Excavation, Equipment, Tractors, Frozen ground.

35-354
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Frozen ground, Artificial freezing, Coolants, Oxygen, Construction, Earthwork.

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Drilling and blowing wells clean with low-pressure compressed air. (Burenie shurfov s produvkoi szhatym vozdukhom nizkogo davleniia).
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Foundations, Permafrost beneath structures, Piles.

35-356
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Mining, Excavation, Equipment.

35-357
Present thermal climatic changes at the polar frontier of the European community—dimensions, causes and effects. (Aktuelle thermische Klimaveränderungen am Polarrand der Ökumene Europas Ausmass, Ursachen und Auswirkungen).
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Glacier surveys, Glacier thickness, Ice cover thickness, Aerial surveys, Kenya—Lewis Glacier.

35-359
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Glacial hydrology, Glacier melting, Periodic variations, Water supply, Bolivia.

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Physics of ice and ocean. (Fizika l'da i okeana),
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Gusev, A.V., ed.
Sea ice, Ice acoustics, Underwater acoustics, Ice composition, Unfrozen water content, Brines, Radiometry, Radio echo soundings, Glacier ice, Icebergs, Arctic Ocean.

35-361
Structure of electric parameters in the upper layers of Arctic drift ice in the ultra-high frequency range, allowing for real distributions of physical characteristics. (Struktura elektricheskikh parametrov verkhnikh sloev arkticheskogo dreĭfuiushchego l'da v diapazone SVCh s uchetom real'nykh raspredeleniĭ fizicheskikh kharakteristik),
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Khokhlov, G P.
Electromagnetic prospecting, Ice physics, Sea ice, Stratigraphy, Snow cover, Hoarfrost, Models, Arctic Ocean.

35-362
Dependence of sea ice refractive index on specific attenuation in the UHF range. (O zavisimosti pokazatelia prelomleniia morskogo l'da ot ego udel'nogo oslableniia v diapazone SVCh),
Khokhlov, G.P., *Leningrad Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy*, 1980, Vol 374, p.15-17, In Russian. 4 refs.
Sea ice, Unfrozen water content, Electromagnetic properties, Radio waves, Refraction, Attenuation.

35-363
Microwave radiation of sea ice. (O mikrovolnovom izluchenii morskogo l'da),
Nikitin, P.A., *Leningrad Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut Trudy*, 1980, Vol.374, p.18-22, In Russian. 4 refs.
Sea ice, Microwaves, Radiometry, Airborne equipment.

35-364
Active-passive radio system for sounding sea ice. (Aktivno-passivnaia radiosistema zondirovaniia morskogo l'da),
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Vitushkina, M.N., Paramonov, A.I.
Sea ice, Drift, Ice cover thickness, Radio echo soundings.

35-365
Radar technique of studying peat and sapropel deposits. (Issledovanie zalezhei torfa i sapropelia radiolokatsionnym sposobom),
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Trepov, G.V., Gorokh, E.V.
Swamps, Peat, Icebound lakes, Ice cover thickness, Radar echoes.

35-366
Possibilities of acoustic techniques in determining rheologic properties of ice covers. (Reologicheskie svoĭstva ledianogo pokrova i vozmozhnost' ikh opredeleniia akusticheskim metodom),
Nikitin, V A , *Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy*, 1980, Vol.374, p.30-36, In Russian. 16 refs.
Ice mechanics, Rheology, Acoustic measurement, Ice loads, Hydraulic structures.

35-367
Seasonal variations in sea ice elasticity. (Sezonnye izmenenia svoĭstv uprugosti morskogo ledianogo pokrova),
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Gusev, A.V., Nikitin, V.A.
Sea ice, Drift, Ice cover thickness, Elastic properties

35-368
Studying plastic deformation of fresh-water ice under impact loads. (Issledovanie plasticheskoĭ deformatsii presnovodnogo l'da pri udarnoĭ nagruzke),
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Gavrilo, V.P , Ivanov, V.I
Lake ice, River ice, Impact tests, Plastic deformation, Ice blasting, X ray analysis.

35-369
Simultaneous investigations of deformation, acoustic and electric properties of glacier ice. (Nekotorye rezul'taty odnovremennogo issledovaniia deformatsionnykh, akusticheskikh i elektricheskikh kharakteristik gletchernogo l'da),
Bogorodskiĭ, V.V , et al, *Leningrad Arkticheskiĭ i antarkticheskiĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1980, Vol.374, p.51-55, In Russian. 5 refs.
Glacier ice, Ice physics, Acoustics, Electromagnetic properties, Rheology.

35-370
Inherent noise of the Antarctic glacier in the Novolazarevskaya Station area and acoustic attenuations. (Sobstvennye shumy antarkticheskogo lednika Novolazarevskogo i zatukhanie akusticheskikh signalov v nem),
Gavrilo, V.P., et al, *Leningrad. Arkticheskiĭ i antarkticheskiĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1980, Vol.374, p.56-61, In Russian. 9 refs.
Gusev, A.V., Nikitin, V.A.
Ice acoustics, Glacier flow, Noise (sound), Measuring instruments, Antarctica--Novolazarevskaya Station.
The effect of meteorological conditions on acoustic field levels in the antarctic glacier was studied in the Novolazarevskaya Station area in June-Sep 1976. Inherent noise was recorded three times a day for one hour at equal time intervals, the piezoelectric receiver being frozen into ice at 3 meter depth and recording sounds in the 10-10,000 hertz range Acoustic attenuation results have revealed the possibility of studying ice flow by moving sensing elements to a 50 m depth, thus excluding the surface layer noise

35-371
Underwater acoustic emission of Antarctic icebergs. (Podvodnaia akusticheskaia emissiia antarkticheskikh aĭsbergov),
Gusev, A.V , et al, *Leningrad. Arkticheskiĭ i antarkticheskiĭ nauchno-issledovatel'skiĭ institut Trudy*, 1980, Vol.374, p.62-66, In Russian. 5 refs.
Popov, I.K.
Icebergs, Ice acoustics, Underwater acoustics, Ice deterioration, Noise (sound).
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35-372
Acoustic effects produced by drifting ice breaking under an icebreaker's body. (Akusticheskie effekty razrushenia dreĭfuiushchego l'da korpusom ledokola),
Bogorodskiĭ, P.V., et al, *Leningrad. Arkticheskiĭ i antarkticheskiĭ nauchno-issledovatel'skiĭ institut Trudy*, 1980, Vol.374, p.67-70, In Russian. 7 refs
Nikitin, V.A.
Ice navigation, Icebreakers, Ice breaking, Noise (sound), Acoustic measurement.

35-373
Acoustic method of determining three-dimensional inhomogeneities in ice cover from a ship. (Akusticheskiĭ metod opredelenia prostranstvennykh neodnorodnosteĭ ledianogo pokrova s borta sudna),
Bogorodskiĭ, P.V , et al, *Leningrad Arkticheskiĭ i antarkticheskiĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1980, Vol.374, p.71-73, In Russian. 2 refs.
Gavrilo, V.P.
Ice navigation, Icebreakers, Ice breaking, Ice cracks, Acoustic measurement, Pressure ridges, Polynyas.

35-374
Hydroacoustic method for studying dynamics of sea ice formation. (Issledovanie dinamiki obrazovaniia morskogo l'da gidroakusticheskim metodom),
Gavrilo, V P., et al, *Leningrad. Arkticheskiĭ i antarkticheskiĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1980, Vol 374, p.74-69, In Russian 4 refs
Sukhorukov, K K.
Sea ice, Ice growth, Ice cover thickness, Acoustic measurement.

35-375
Synchronized measurements of ultra-low frequency acoustic and electromagnetic waves in marine environments. (Sinkhronnye izmereniia infranizkochastotnykh akusticheskikh i elektromagnitnykh voln v morskoĭ srede),
Bogorodskiĭ, V.V., et al, *Leningrad. Arkticheskiĭ i antarkticheskiĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1980, Vol.374, p 80-86, In Russian. 8 refs.
Sea ice, Ice acoustics, Drift stations, Acoustic measurement, Ice physics, Wave propagation, Electromagnetic waves, Stress concentration.

35-376
Designing thermometric apparature for studies from drifting ice in the Arctic Basin. (Nekotorye voprosy razrabotki termometricheskoĭ apparatury dlia issledovaniĭ s dreĭfuiushchikh l'dov Arkticheskogo basseĭna),
Gusev, A V , et al, *Leningrad Arkticheskiĭ i antarkticheskiĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1980, Vol.374, p.87-93, In Russian. 7 refs
Mishin, V E
Sea ice, Ice acoustics, Underwater acoustics, Measuring instruments, Arctic Ocean.

35-377
Using sound velocity measuring instruments in studying hydrophysical fields from drifting ice. (Ispol'zovanie izmeritelia skorosti zvuka dlia issledovaniia gidrofizicheskikh poleĭ s dreĭfuiushchego l'da),
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Sea ice, Drift stations, Acoustic measurement, Underwater acoustics, Ice acoustics.

35-378
Statistical analysis of water temperature fluctuations in the central part of the Arctic Basin. (Statisticheskiĭ analiz fluktuatsiĭ temperatury vody v tsentral'noĭ chasti Arkticheskogo basseĭna),
Bogorodskiĭ, P.V., et al, *Leningrad Arkticheskiĭ i antarkticheskiĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1980, Vol 374, p.101-104, In Russian 1 ref.
Nikolaev, IU.V.
Water temperature, Temperature variations, Drift stations, Ocean currents, Water transport, Arctic Ocean.

35-379
Temperature and salinity distribution in the Atlantic part of the Arctic Basin. (Raspredelenie temperatury i solenosti v priatlanticheskoĭ chasti Arkticheskogo basseĭna),
Chebotareva, V A , *Leningrad Arkticheskiĭ i antarkticheskiĭ nauchno-issledovatel'skiĭ institut Trudy*, 1980, Vol 374, p 109-111, In Russian
Water temperature, Salinity, Seasonal variations, Arctic Ocean.

35-380
Using the radio-hydroacoustic technique in shallow water areas of the Arctic Basin. (Osobennosti ispol'zovaniia radiogidroakusticheskogo metoda v melkovodnykh raĭonakh Arkticheskogo basseĭna),
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Chebotareva, V.A.
Sea ice, Drift, Ice cover thickness, Stress concentration, Ice acoustics, Underwater acoustics, Arctic Ocean.

35-381
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Gaĭtskhoki, B IA., Krasil'shchikov, S A.
Ice physics, Light scattering, Ice crystal optics, Analysis (mathematics).

35-382
Snow accumulation on fast ice of the "Severnyy Polius-22" island (1974-75). {O kharaktere snegonakopleniia na pripae ostrova "Severnyĭ Polius-22" (1974-75 g.)},
Khokhlov, G.P., *Leningrad Arkticheskiĭ i antarkticheskiĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1980, Vol 374, p 149-152, In Russian. 1 ref.
Sea ice, Drift stations, Fast ice, Snow accumulation, Ice physics, Electrical properties, Ice composition, Unfrozen water content, Brines, Snow cover effect.

35-383
Horizontal temperature gradients in ice. {Gorizontal'nye gradienty temperatury vo l'du},
Volodin, E S , et al, *Leningrad Arkticheskiĭ i antarkticheskiĭ nauchno-issledovatel'skiĭ institut Trudy*, 1980, Vol.374, p.153-157, In Russian. 5 refs.
Gaitskhoki, B IA.
Sea ice, Ice formation, Ice cover thickness, Ice temperature, Temperature gradients, Snow cover effect.

35-384
Studying artificial freezing parameters for driving horizontal workings. {Issledovanie parametrov zamorazhivaniia pri provedenii gorizontal'nykh vyrabotok},
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Shuplik, M.N., Resin, V.I
Mining, Excavation, Earthwork, Soil water migration, Artificial freezing, Models.

35-385
Cryogenic structure and ice content of perennially frozen rocks in the West Siberian Platform. {Kriogennoe stroenie i l'distost' mnogoletnemerzlykh porod Zapadno-Sibirskoĭ plity},
Trofimov, V.T , et al, Moscow, Izd-vo Mosk. Univ., 1980, 246p., In Russian with English table of contents enclosed. Refs p.240-245.
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Permafrost distribution, Permafrost structure, Ground ice, Frozen rock temperature, Permafrost thickness, Active layer, Maps, Thawing, Settlement (structural).

35-386
Regularities governing landslide processes in the European USSR and regional landslide forecasting. {Zakonomernosti opolznevogo protsessa na evropeĭskoĭ territorii SSSR i ego regional'nyĭ prognoz},
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Maps, Slope processes, Landslides, Forecasting, Classification, Human factors.

35-387
BM-254 drilling equipment. {Mashina BM-254 dlia bureniia shpurov},
Bendler, A.I., *Stroitel'nye i dorozhnye mashiny*, June 1980, No.6, p 3-5, In Russian.
Drills, Boreholes, Drilling, Frozen ground.

35-388
Truck-mounted hydraulic crane KS-3572. {Gidravlicheskiĭ avtomobil'nyĭ kran KS-3572},
Chikunov, A M , et al, *Stroitel'nye i dorozhnye mashiny*, June 1980, No.6, p 9-10, In Russian
Kulikov, A.P , Kuroedov, A.N., Smirnov, O A.
Cranes (hoists), Construction equipment, Cold weather performance.

35-389
Modernized tower crane KB-403A. {Modernizirovannyĭ bashennyĭ kran KB-403A},
Korostelev, N.S., et al, *Stroitel'nye i dorozhnye mashiny*, June 1980, No 6, p 10-11, In Russian
Smirnov, IU.V.
Cranes (hoists), Design, Construction equipment.

35-390
Flow-producing equipment PO-1200, PO-2200 and PO-3150 for maintaining ice-free areas around dredging shovels. {Novye potokoobrazovateli PO-1200, PO-2200 i PO-3150 dlia podderzhaniia mainy vokrug zemsnariadov},
Roshchupkin, D.V., et al, *Stroitel'nye i dorozhnye mashiny*, June 1980, No 6, p 17-18, In Russian
Earthwork, Dredging, Polynyas, Construction equipment.

35-391
Most powerful excavator ever built. {Samyĭ moshchnyĭ v mire ekskavator},
Bulanov, A A , *Stroitel'nye i dorozhnye mashiny*, June 1980, No.6, p.20-21, In Russian
Excavation, Equipment, Earthwork, Frozen ground.

35-392
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Vasilevich, V I
Swamps, Peat, Frost penetration, Landscape types, Plant ecology, Ecosystems.

35-393
Distribution of lichens and mosses in forest steppes of the central Indigirka River area. {Raspredelenie lishainikov i mkhov v lesostepnykh landshaftakh v srednem techenii r. Indigirki},
Afonina, O M , et al, *Botanicheskiĭ zhurnal*, Jan 1980, Vol 65(1), p.66-82, In Russian with English summary 16 refs.
Bredkina, L.I., Makarova, I.I.
Subarctic landscapes, Forest soils, Steppes, Mosses, Lichens, Plant ecology, Ecosystems, Cryogenic soils.

35-394
New data on the adventive flora in different areas of taiga in the European part of the USSR. {Novye svedeniia po adventivnoĭ flore raznykh oblastei taezhnoĭ zony evropeĭskoĭ chasti SSSR},
Gusev, IU.D., *Botanicheskiĭ zhurnal*, Feb. 1980, 65(2), p 249-255, In Russian 43 refs.
Taiga, Landscape types, Plant ecology, Ecosystems, Cryogenic soils.

35-395
Biomass and production of algae in tundra soils. {Biomassa i produktsiia vodorosleĭ v tundrovykh pochvakh},
Perminova, G.N., *Botanicheskiĭ zhurnal*, June 1980, 65(6), p.859-863, In Russian. 24 refs
Tundra, Plant ecology, Biomass, Cryogenic soils, Algae, Landscape types.

35-396
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Forest tundra, Cryogenic soils, Trees (plants), Forest lines, Swamps, Plant ecology.

35-397
Siberian Arctic species *Potamogeton subsibiricus (Potamogeton aceae)* in Bol'shezemel'skaya tundra. {Sibirskiĭ arkticheskiĭ vid *Potamogeton subsibiricus (Potamogeton aceae)* v Bol'shezemel'skoĭ tundre},
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Tundra, Plants (botany), Plant ecology, USSR—Bol'shezemel'skaya Tundra.

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Petroleum industry, Oil recovery, Permafrost thickness, Frozen rock temperature, Thermal regime.

35-399
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Nevskaia, N M , *Leningrad. Vsesoiuznyĭ neftianoĭ nauchno-issledovatel'skiĭ geologorazvedochnyĭ institut. Trudy*, 1975, Vol.369, p.102-105, In Russian. 2 refs.
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Petroleum industry, Oil recovery, Permafrost distribution, Permafrost thickness, Frozen rock temperature, Thermal regime.

35-400
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Marine geology, Continental drift, Tectonics.
A brief review of the development of the continental drift and tectonics theories is given and the two polar regions are described and compared regarding their surface geologic characteristics and history and the ocean floors beneath the ice cover The possibilities of mineral resources in both polar areas are mentioned along with the great difficulties associated with their safe and economical recovery

35-401
Tales the ice can tell. *Mosaic*, Sep /Oct 1980, 9(5), p 15-21.
Ice sheets, Impurities, Ice cores, Climatic changes.
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35-402
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Spaceborne photography, Weather, Sea ice, Wind (meteorology), Models.
The meteorological, atmospheric, and oceanic interrelationships among many diverse parts of the globe are stressed The polar areas strongly affect weather patterns throughout the globe and produce a unique climate of their own This is especially true of the Antarctic area where katabatic winds throughout the continent significantly affect even the near-shore sea ice Most natural phenomena exist on a larger scale in Antarctica than in the Arctic winds blow stronger, it is colder, the sea ice extent is greater, the atmospheric circulation is more intensified, having about twice the kinetic energy of the Arctic circulation Models of these natural phenomena, either alone or coupled with others in various ways, are discussed

35-403
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35-404
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River ice, River flow, Hydrology, Engineering, Hydraulic structures, Ice breakup, Ice jams, Frazil ice.

35-405
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35-406
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35-407
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35-408
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35-409
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River ice, Naleds, Ice formation, River flow, Ice cover effect.

35-410
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Stream flow, River ice, River flow, Channels (waterways), Water supply, Winter.

35-411
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35-412
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35-413
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River ice, Naleds, Ice scoring, Ice erosion, Bottom topography, Impact strength.

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was -2C and the ice flexural strength was 11,643 lb/sq ft (560 kPa) The specific weight (density) of the ice was 0 894 g cu cm The specific weight of the snow was in the area of 0 32 g/cm The coefficient of friction between the ice/snow and steel plate (coated and uncoated) varied from a low of 0 02 in the dynamic case of ice on the Inerta 160 coating to 0 47 for the static case of snow on a rusty steel plate

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35-550
Investigations of sea ice anisotropy, electromagnetic properties, strength and under-ice current orientation.
Kovacs, A., et al, *Memorial University of Newfoundland Centre for Cold Ocean Resources Engineering C-CORE publication.* May 1980, No 80-5, MP 1323, p.109-153, 16 refs.
Morey, R.M.
Sea ice, Anisotropy, Electromagnetic properties, Ice strength, Ocean currents, Subglacial observations, Remote sensing, Ice physics, Ice cover thickness, Ice water interface, Ice crystal structure.

35-551
Electrical property measurements of sea ice *in situ* using a wideband borehole radar and a time-domain reflectometer.
Davis, J.L., *Memorial University of Newfoundland Centre for Cold Ocean Resources Engineering C-CORE publication.* May 1980, No.80-5, p.155-187, 31 refs.
Sea ice, Ice electrical properties, Radar echoes, Echo sounding, Borehole instruments.

35-552
Crystal anisotropy in sea ice.
Langhorne, P., *Memorial University of Newfoundland Centre for Cold Ocean Resources Engineering. C-CORE publication.* May 1980, No 80-5, p.189-224, Refs. p.208-210.
Sea ice, Ice crystal optics, Anisotropy, Ice water interface.

35-553
HF to VHF radio frequency polarization studies in sea ice at Pt. Barrow, Alaska.
Arcone, S.A., et al, *Memorial University of Newfoundland. Centre for Cold Ocean Resources Engineering. C-CORE publication.* May 1980, No 80-5, MP 1324, p.225-245, 8 refs.
Delaney, A.J.
Sea ice, Fast ice, Polarization (waves), Anisotropy, Ice optics, Ice cover thickness, Electromagnetic properties.
The frequency dependence of the polarization-rotation properties of fast ice upon radiowaves in the HF-VHF range were studied at Pt Barrow, Alaska, in the early spring of 1979 Five sites were investigated at frequencies between 10 and 173 MHz and at each site cores were taken and then physical properties measured The polarization was studied with a pair of crossed dipole antennas, one a transmitter, the other a receiver, both of which were rotated simultaneously as a fixed unit. This procedure was designed to produce a four-lobe cloverleaf pattern with maximum coupling occurring when the antennas were aligned at 45 deg to the c-axis direction The results showed strongest polarization between about 35 and 65 MHz Above this band the high dc conductivity of the sea ice which was measured accounts for the lack of cross coupling, but it is not yet understood why the data was so erratic below this band Experimental difficulties are also discussed

35-554
Modeling of anisotropic electromagnetic reflection from sea ice.
Golden, K.M., et al, *Memorial University of Newfoundland. Centre for Cold Ocean Resources Engineering. C-CORE publication.* May 1980, No.80-5, MP 1325, p.247-294, 21 refs.
Ackley, S.F
Sea ice, Brines, Anisotropy, Electromagnetic properties, Ice optics, Ice water interface, Dielectric properties, Ice structure, Polarization (waves), Mathematical models.
The contribution of brine layers to observed reflective anisotropy of sea ice at 100 MHz is quantitatively assessed The sea ice is considered to be a stratified, inhomogeneous, anisotropic dielectric consisting of pure ice containing ordered arrays of conducting inclusions (brine layers) Below the transition zone, the ice is assumed to have constant azimuthal c-axis orientation within the horizontal plane, so the orientation of brine layers is uniform The brine layers are also assumed to become increasingly well-defined with depth, since adjacent brine inclusions tend to fuse together with increasing temperature A theoretical explanation for observed reflective anisotropy is proposed in terms of anisotropic electric flux penetration into brine layers Penetration anisotropy and brine layer geometry are linked to anisotropy in the complex dielectric constant of sea ice Subsequently, a numerical method of approximating the reflected power of a plane wave pulse incident on a slab of sea ice is presented and used to show the contribution of the above effects to the observed reflective anisotropy

35-555
Ice freeboard determination by satellite altimetry.
Stanley, H.R., et al, *Memorial University of Newfoundland. Centre for Cold Ocean Resources Engineering C-CORE publication.* May 1980, No.80-5, p 295-304.
Brooks, R L., Brown, G S.
Sea ice, Height finding, Remote sensing, Ice surface, Ice water interface, Sea level.

35-556
Some tests of a VHF synthetic pulse sea ice thickness sensor.
Tam, S.Y.K., et al, *Memorial University of Newfoundland. Centre for Cold Ocean Resources Engineering. C-CORE publication.* May 1980, No.80-5, p 305-312, 5 refs.
Keelty, J M.
Sea ice, Ice cover thickness, Remote sensing, Wave propagation, Salt ice, Antennas, Tests.

35-557
Low frequency methods for measuring sea ice thickness.
Hoekstra, P., et al, *Memorial University of Newfoundland Centre for Cold Ocean Resources Engineering C-CORE publication.* May 1980, No.80-5, p 313-330, 9 refs.
Sartorelli, A., Shinde, S.B.
Sea ice, Ice cover thickness, Remote sensing, Ice electrical properties, Radar echoes, Sea water.

35-558
Microwave measurements of salt thickness.
Unterberger, R.R., *Memorial University of Newfoundland Centre for Cold Ocean Resources Engineering. C-CORE publication.* May 1980, No 80-5, p 331-347, 10 refs.
Microwaves, Ice electrical properties, Rock properties, Wave propagation, Permeability, Electromagnetic properties, Mining, Inorganic salts.

35-559
Synthetic pulse radar design.
Keelty, J.M., et al, *Memorial University of Newfoundland. Centre for Cold Ocean Resources Engineering C-CORE publication.* May 1980, No.80-5, p 349-360
Tam, S.Y.K.
Sea ice, Ice cover thickness, Radar echoes, Transmission.

35-560
Active methods for sea ice thickness measurements.
Bogorodskii, V.V., *Memorial University of Newfoundland. Centre for Cold Ocean Resources Engineering C-CORE publication.* May 1980, No.80-5, p.361-372, 3 refs.
Sea ice, Ice cover thickness, Electromagnetic properties, Radio echo soundings.

35-561
Sea ice thickness radar operating in the high frequency band.
Hunt, F.R., *Memorial University of Newfoundland Centre for Cold Ocean Resources Engineering C-CORE publication.* May 1980, No.80-5, p.373-384, 2 refs
Sea ice, Ice cover thickness, Radar echoes, Remote sensing.

35-562
Technology of an airborne impulse radar.
Butt, K.A., et al, *Memorial University of Newfoundland Centre for Cold Ocean Resources Engineering C-CORE publication.* May 1980, No 80-5, p 385-412 14 refs
Gamberg, J B
Sea ice, Ice cover thickness, Radar echoes, Attenuation, Echo sounding, Antennas.

35-563
Bulk sea ice surveying.
Oswald, G K A., *Memorial University of Newfoundland Centre for Cold Ocean Resources Engineering C-CORE publication.* May 1980, No 80-5, p 413-420, 1 ref
Sea ice, Ice cover thickness, Radar echoes, Subglacial observations, Lasers, Ice surveys.

35-564
Impulse radars.
Van Etten, P., *Memorial University of Newfoundland Centre for Cold Ocean Resources Engineering C-CORE publication.* May 1980, No 80-5, p 421-437, 34 refs
Radar echoes, Wave propagation, Measuring instruments, Sea ice, Ice cover thickness, Ice surveys.

35-565
Load bearing capacity test on a freshwater ice cover.
Laidley, T.E., et al, *Memorial University of Newfoundland Centre for Cold Ocean Resources Engineering. C-CORE publication.* Aug 1980, No 80-8, 50p, 16 refs
Laurentius, T B., Hamza, H.
Ice cover strength, Bearing strength, Loads (forces), Strain measuring instruments, Bearing tests, Ice creep, Ice temperature, Ice elasticity, Ice cracks, Surface properties.

35-566
Environmental studies (1974 ; James Bay territory and surrounding area. James Bay Development Corporation, Environment Canada, (1975), 108p + 14 figs, 166 refs
Environmental impact, Climate, Animals, Marine biology, Research projects, Electric power.

35-567
Protective measures for engineering concrete structures against the influence of humidity, frost and salt. (Schutzmassnahmen bei Ingenieurbauwerken aus Beton gegen Feuchtigkeits-, Frost- und Tausalzwirkungen).
Weyer, P., *Strasse und Autobahn.* Apr 1980, 31(4), p 173-177, In German 5 refs
Concrete structures, Protection, Concrete freezing, Humidity, Chemical ice prevention, Frost action, Salting.

35-568
Resistivity of bridge concrete pavement to freezing and salting. (Widerstandsfähigkeit von Brückenkappen aus Beton gegen Frost- und Tausalzbeanspruchung).
Härtig, S., *Strasse und Autobahn,* June 1980, 31(6), p.271-276, In German. Pt 2, Ibid, July-Aug 1980, Vol.31, No 7/8, p.355-359, 25 refs
Concrete pavements, Concrete durability, Bridges, Concrete freezing, Salting, Damage, Road icing.

35-569
Resistance of concrete to urea and freezing. (Zum Widerstand von Beton gegenüber Harnstoff und Frost).
Blunk, G., et al, *Strasse und Autobahn.* Mar 1980, 31(3), p.119-131, In German. 30 refs
Brodersen, A.
Concrete freezing, Concrete durability, Road icing, Urea, Chemical ice prevention, Damage, Salting.

35-570
Environmental impact of highway deicing. (Vintervägsaltets miljöpaverkan).
Bäckman, L., *Sweden Statens väg- och Trafikinstitut. Rapport,* 1980, No 197, 62p + tables, In Swedish with English summary 11 refs
Environmental impact, Road icing, Chemical ice prevention, Damage, Vegetation, Soil pollution, Ground water, Trees (plants).

35-571
Internal structure and embryo of graupel.
Harimaya, T., *Hokkaido University, Sapporo, Japan Faculty of Science Journal Series 7 (Geophysics)* Dec. 1977, 5(2), p.29-38, 10 refs.
Snow pellets, Snow crystal structure, Snow crystal growth.

35-572
Snow crystals of unusual type observed at the summit of Mt. Teine.
Yamami, N., et al, *Hokkaido University, Sapporo, Japan Faculty of Science. Journal. Series 7 (Geophysics)*, Dec 1977, 5(2), p 39-45, 11 refs.
Snow crystal structure, Temperature effects.

35-573
Method for numerical forecast of the distribution of snowfall in the Ishikari Plain.
Shiotsuki, Y., et al, *Hokkaido University, Sapporo, Japan Faculty of Science. Journal Series 7 (Geophysics)*, Dec 1978, 5(3), p 46-66, 21 refs
Magono, C
Snowfall, Weather forecasting, Snow cover distribution, Snow accumulation, Snow water content, Air temperature, Wind velocity, Analysis (mathematics).

35-574
Observation of size distribution of graupel and snow flakes.
Harimaya, T., *Hokkaido University, Sapporo, Japan Faculty of Science Journal Series 7 (Geophysics)*, Dec 1978, 5(3), p 67-77, 11 refs
Snow pellets, Snowflakes, Particle size distribution, Radar echoes.

35-575
Axi-symmetric finite element formulation of non-homogeneous floating ice sheets. Part 1—Linear analysis.
Murat, J.R., *Montréal. Université. Ecole polytechnique. Rapport*, Apr 1976, EP 76-R-11, 45p, 6 refs
Ice sheets, Bearing strength, Flexural strength, Floating ice, Elastic properties, Ice structure, Analysis (mathematics), Homogeneity.

35-576
Proceedings.
High Altitude Revegetation Workshop No 4, Golden, Colorado, Feb. 26-27, 1980, *Colorado State University, Fort Collins. Environmental Resources Center. Information series*, June 1980, No.42, 258p, Refs passim. For individual papers see 35-577 through 35-593.
Jackson, C L, ed, Schuster, M.A., ed.
Revegetation, Plant ecology, Slope stability, Environmental impact, Meetings.

35-577
Snow, wind and vegetation in the Front Range, Colorado.
Marr, J.W, *Colorado. State University, Fort Collins. Environmental Resources Center Information series*, June 1980, No 42, p 1-15, 8 refs.
Revegetation, Snow accumulation, Wind factors, Plant ecology.

35-578
Revegetation of disturbed sites along the Yukon River to Prudhoe Bay haul road.
Johnson, A W, et al, *Colorado. State University, Fort Collins Environmental Resources Center Information series*, June 1980, No.42, p.16-29, 2 refs
Kubanis, S.A.
Revegetation, Environmental impact, Grasses, Roads, Classifications, United States—Alaska—Yukon River.

35-579
Edaphic factors and their influence in patterns of tundra revegetation.
Everett, K.R., *Colorado State University, Fort Collins. Environmental Resources Center. Information series*, June 1980, No 42, p.30-37, 19 refs.
Revegetation, Alpine tundra, Permafrost, Soil water, Environmental impact, Soil chemistry.

35-580
Vegetation succession and recovery of old oil wells on the Alaskan North Slope.
Komárková, V., et al, *Colorado. State University, Fort Collins. Environmental Resources Center Information series*, June 1980, No.42, p 38-64, 20 refs.
Webber, P.J.
Revegetation, Alpine tundra, Oil wells, Environmental impact, Grasses, Growth, Time factor, Computer applications.

35-581
Physiology and life cycles of arctic-alpine plants.
Bliss, L C., *Colorado. State University, Fort Collins. Environmental Resources Center. Information series*, June 1980, No.42, p.65-78, 26 refs.
Plant ecology, Revegetation, Polar regions.

35-582
Relationship of the snowpack to acid mine drainage from a western surface mine.
Farmer, E E, et al, *Colorado State University, Fort Collins Environmental Resources Center Information series*, June 1980, No 42, p 79-100, 4 refs
Richardson, B.Z
Revegetation, Snow cover, Particle size distribution, Drainage, Meltwater, Water chemistry, Water pollution, Mines (excavations), Environmental impact.

35-583
Reclamation of acid-producing spoils on a western surface mine.
Richardson, B.Z., *Colorado. State University, Fort Collins Environmental Resources Center Information series*, June 1980, No 42, p 101-112, 14 refs
Revegetation, Mines (excavations), Drainage, Meltwater, Water pollution, Environmental impact.

35-584
Revegetation-restoration for the Trans-Alaska pipeline system.
Hubbard, G.E., *Colorado State University, Fort Collins. Environmental Resources Center Information series*, June 1980, No 42, p 113-125.
Revegetation, Oil spills, Pipelines, Soil pollution, Meltwater, Protection.

35-585
Assessment of revegetation techniques for alpine disturbances.
Brown, R.W., et al, *Colorado State University, Fort Collins Environmental Resources Center Information series*, June 1980, No 42, p 126-146, 29 refs
Johnston, R S
Revegetation, Plant ecology, Protection, Environmental impact.

35-586
Reclamation process as affected by the surface mining regulations.
Brown, J.A., *Colorado State University, Fort Collins Environmental Resources Center. Information series*, June 1980, No.42, p.148-152.
Revegetation, Mines (excavations), Drainage, Water pollution, Environmental impact.

35-587
Latest advances in plant materials development at the Meeker Environmental Plant Center.
Hassell, W.G., *Colorado. State University, Fort Collins. Environmental Resources Center. Information series*, June 1980, No.42, p.153-172.
Revegetation, Plant ecology, Classifications.

35-588
Improved plant traits for high altitude disturbances.
Johnson, D.A., *Colorado. State University, Fort Collins. Environmental Resources Center. Information series*, June 1980, No.42, p.173-184, 17 refs.
Revegetation, Plant ecology, Soil erosion.

35-589
Alpine revegetation research at the Climax molybdenum mine.
Guillaume, M, *Colorado. State University, Fort Collins Environmental Resources Center. Information series*, June 1980, No 42, p.185-203
Growth, Revegetation, Grasses, Research projects.

35-590
Problems in testing seeds of revegetation species.
Larsen, A., *Colorado. State University, Fort Collins Environmental Resources Center Information series*, June 1980, No.42, p.204-206.
Revegetation, Growth.

35-591
Geological processes in the high alpine environment.
Rold, J W., *Colorado State University, Fort Collins. Environmental Resources Center. Information series*, June 1980, No.42, p 207-209.
Revegetation, Geologic processes, Climatic factors.

35-592
Alpine soil factors in disturbance and revegetation.
Burns, S.F, *Colorado State University, Fort Collins Environmental Resources Center. Information series*, June 1980, No.42, p.210-227, 18 refs.
Revegetation, Soil surveys, Slope orientation, Ecosystems, Profiles, Mapping.

35-593
Impact of elk on alpine tundra in Rocky Mountain National Park.
Stevens, D.R., *Colorado. State University, Fort Collins. Environmental Resources Center. Information series*, June 1980, No 42, p.228-241, 18 refs.
Alpine tundra, Animals, Ecosystems.

35-594
Heat and mass transfer from freely falling drops at low temperatures.
Zarling, J P, *U S Army Cold Regions Research and Engineering Laboratory*, Aug 1980 CR 80-18, 14p, ADA-090 522, 18 refs
Drops (liquids), Freezing, Heat transfer, Mass transfer, Low temperature tests, Supercooling, Ice physics, Computer applications, Construction materials.
The use of ice as a structural material is common practice for certain applications in cold regions Techniques such as surface flooding or water spraying are used to accelerate ice growth rates, thereby lengthening the winter construction season This report examines the heat and mass transfer rates from freely falling water drops in cold air Design equations which predict the amount of supercooling of the drops as a function of outdoor ambient temperature, drop size and distance of fall are given

35-595
Moisture-proof insulation for lowering heat losses in heat pipes. [Neuvlazhniaiushchaiasia izoliatsiia dlia umen'shenia poter' tepla v teplovykh setiakhj.
Zaverkin, I A, *Energeticheskoe stroitel'stvo*, Aug 1980, No 8, p.26-29, In Russian 2 refs
Heating, Heat pipes, Thermal insulation, Heat loss.

35-596
Temperature control of bearing grounds on northern construction sites. [Nekotorye voprosy upravlenia temperaturnym rezhimom osnovanii pri stroitel'stve na Severe].
Makarov, V I, *Energeticheskoe stroitel'stvo*, Aug 1980, No 8, p.37-41, In Russian 5 refs
Permafrost bases, Foundations, Thermopiles, Permafrost control, Artificial cooling, Snow cover effect.

35-597
Injection grouts for cementing low temperature bases of hydraulic structures. [Tsementnye rastvory dlia in"'etsirovaniia nizkotemperaturnykh porod osnovanii gidrosooruzhenij].
Shugalei, R T., et al, *Energeticheskoe stroitel'stvo*, Aug 1980, No 8 p 63-64, In Russian 3 refs
Tetel'min, V.V.
Soil stabilization, Waterproofing, Rocks, Cements, Grouting, Foundations, Permafrost.

35-598
Electrical grounding for 110 kv unit substations, designed according to contact voltage standards. [Zazemliaiushchee ustroistvo dlia komplektnykh podstantsij 110 kV rasschitannoe po normam na naprjazhenie prikosnovenija].
Selivanov, A.G., et al, *Energeticheskoe stroitel'stvo*, Aug 1980, No 8, p 64-66, In Russian, 2 refs.
Zakharov, V.L., Ivakin, I.V.
Electrical grounding, Mountains, Permafrost, Design.

35-599
Roadbed design and construction under difficult engineering and geological conditions. [Iz opyta proektirovaniia i sooruzhenia zemlianogo polotna v slozhnykh inzhenerno-geologicheskikh usloviiakh].
Knizhnik, G B., et al, *Transportnoe stroitel'stvo*, Sep 1980, No.9, p.4-5, In Russian.
Panfilov, S.P, Patsenko, IU.S.
Railroads, Roadbeds, Embankments, Earth dams, Thixotropy, Fines, Slope stability, Solifluction.

35-600
Sewage treatment in settlements of the Baykal Amur railroad. [Ochistka stochnykh vod v poselkakh BAMa].
Fedotov, V.P, *Transportnoe stroitel'stvo*, Sep 1980, No.9, p.20-21, In Russian.
Sewage treatment, Baykal Amur railroad, Permafrost beneath structures.

35-601
Ways of improving excavation equipment for frozen ground. [Puti sovershenstvovania mekhanizatsii razrabotki merzlogo grunta].
Bass, B A, *Transportnoe stroitel'stvo*, Sep 1980, No.9, p.24-27, In Russian 3 refs
Earthwork, Excavation, Equipment, Frozen ground.

35-602
Promising methods of controlling temperature of concrete. [Perspektivnye metody regulirovania temperatury betona].
Gunter, IU.S., et al, *Energeticheskoe stroitel'stvo*, Sep 1980, No.8, p.19-22, In Russian.
Shkarin, V.P.
Winter concreting, Concrete placing, Concrete hardening, Temperature control, Concrete freezing, Concrete strength.

35-603
Modern technology of building cross-over poles. (Progressivnaia tekhnologna sooruzhenna perekhodnykh opor).
Volnilovich, N.A., et al. *Energeticheskoe stroitel'stvo.* Sep 1980, No.8, p 57-61. In Russian
Kogan, E.N., Chernov, V.A.
Power line supports, Steel structures, Permafrost beneath structures, Design.

35-604
Modern design of modular buildings. (Progressivnye konstruktsii inventarnykh zdanii).
Gel'man, E.A., *Energeticheskoe stroitel'stvo.* Sep 1980, No 8, p.61-66. In Russian
Residential buildings, Industrial buildings, Storage, Prefabrication, Panels, Modular construction, Foundations, Roofs, Walls, Snow loads.

35-605
Pneumo-protection of water intakes in heat- and electric power plants from ice and slush. (Opyt pnevmozashchity vodozabornogo sooruzhenna TETs ot l'da i shugi).
Mindrin, V.I., *Elektricheskie stantsii.* Feb 1980, No 2, p 64-65. In Russian
Water intakes, Icing, Electric power.

35-606
Seminar on lightning protection problems in polar regions and perennially frozen ground. (Seminar o problemakh elektrobezopasnosti v rafonakh Zapoliar'ia i mnogoletnemerzlykh gruntakh).
Erofeev, A.A., et al. *Elektricheskie stantsii* Feb 1980, No 2, p.77, In Russian.
Bocharov, V.I.
Meetings, Protection, Electrical grounding, Lightning.

35-607
Calculating ice melting currents according to the two wires-ground scheme. (Raschet tokov plavki gololeda po s. heme dva provoda - zemlia).
Vavilova, I.V., et al. *Elektricheskie stantsii.* Dec 1970, No.12, p 40-44. In Russian. 4 refs
Rudakova, R.M.
Power line icing, Ice melting, Electrical grounding.

35-608
Exhibition: Foundation construction in the USSR. (Vystavka "Fundamentostroenie v SSSR").
Smirnov, L.V., *Biulleten' stroitel'noi tekhniki.* Jan 1980, No.1, p.42-45, In Russian
Residential buildings, Industrial buildings, Foundations, Permafrost beneath structures, Concrete structures, Prefabrication, Reinforced concretes, Soil stabilization.

35-609
Modern methods of road construction. (Peredovoi opyt stroitel'stva avtomobil'nykh dorog).
Smirnov, L.V., *Biulleten' stroitel'noi tekhniki.* Mar 1980, No.3, p.45-47, In Russian
Roads, Railroads, Roadbeds, Embankments, Bridges, Frozen fines, Frost heave, Thermal insulation, Concrete structures, Winter concreting.

35-610
Construction of the Baykal Amur railroad. (Stroitel'stvo Baikalo-Amurskoi zheleznodorozhnoi magistrali).
Smirnov, L.V., *Biulle ' stroitel'noi tekhniki,* Apr. 1980, No 4, p.44-47, In Russian.
Foundations, Roadbeds, Embankments, Bridges, Baykal Amur railroad, Buildings, Earthwork, Construction materials, Construction equipment, Drilling, Blasting.

35-611
Exhibition of the Road Construction Machines pavillion in 1980. (Ekspozitsiia pavil'ona "Stroitel'nye i dorozhnye mashiny" v 1980).
Zelentsova, L.I., *Biulleten' stroitel'noi tekhniki,* May 1980, No.5, p.40-44, In Russian.
Earthwork, Excavation, Drilling, Trenching, Construction equipment, Frozen ground.

35-612
New design standards for airports. (Novye normy proektirovaniia aerodromov).
Demin, I.D., *Biulletin' stroitel'noi tekhniki.* July 1980, No.7, p 17-18, In Russian.
Airports, Building codes, Pavements, Foundations, Hydraulic structures, Permafrost beneath structures, Standards, Frost heave.

35-613
New chapter of construction standards SNiP III-17-78. (O novoi glave SNip III-17-80).
Kameiko, V.A., et al. *Biulleten' stroitel'noi tekhniki,* Aug 1980, No 8, p 16-18. In Russian
Kovalevskii, P.I.
Masonry, Building codes, Prefabrication, Panels, Bricks, Grouting, Cements, Standards, Cold weather construction, Cement admixtures.

35-614
Problems of the Far North: the method of industrial outposts. (Problemy Krainego Severa vakhtennyi metod obsluzhivannia).
Portianko, N.G., et al. *Gazovaia promyshlennost',* July 1980, No 7, p 11-12, In Russian
Miroshnichenko, A.V., Mahutina, L.V., Murav'eva, A.A.
Economic development, Petroleum industry, Work time standards, Transportation, Climatic factors.

35-615
Allowing for snow accumulation when building elevated pipelines. (O vliianii snegovykh nadzemnye truboprovody s uchetom ikh snegozanosimosti).
Nosov, V.L., *Stroitel'stvo truboprovodov,* Sep. 1980, No 9, p 19-21, In Russian. 1 ref.
Petroleum transportation, Pipelines, Snow accumulation, Snow loads, Design.

35-616
Borehole blasting along the Surgut-Polotsk oil pipeline. (Burovzryvnye raboty na trasse nefteprovoda Surgut-Polotsk).
Gushchin, V.I., *Stroitel'stvo truboprovodov,* Sep 1980, No 9, p 27-29, In Russian.
Permafrost beneath structures, Boreholes, Blasting, Petroleum transportation, Pipelines.

35-617
Combined assemblies for drying pipelines and heating insulation materials. (Ispol'zovanie kompleksa agregatov dlia sushki truboprovoda i podogreva izoliatsionnykh materialov).
Romanov, L.S., *Stroitel'stvo truboprovodov,* Sep 1980, No 9, p.29-30, In Russian
Drying, Pipelines, Heating, Thermal insulation, Pipeline freezing, Construction materials.

35-618
Using the mobile crew flow-type construction technology in swampy areas. (Ispol'zovat' tekhnologiiu potochnogo stroitel'stva v zabolochennoi mestnosti).
Karpenko, M.P., *Stroitel'stvo truboprovodov,* Sep. 1980, No 9, p.33-35, In Russian
Pipe laying, Swamps, Cold weather construction.

35-619
Construction of large reservoirs for storage of liquefied gases. (Stroitel'stvo krupnykh rezervuarov dlia khraneniia szhizhennogo prirodnogo gaza).
Novikov, I.P., *Stroitel'stvo truboprovodov,* Sep. 1980, No.9, p.38-39, In Russian
Liquefied gases, Underground storage, Frozen ground, Ground ice, Frost heave.

35-620
Relations between the strength of peat soils, swamp microlandscapes and their images on aerial photographs. (Sviaz' prochnostnykh svoistv torfianykh gruntov s tipami bolotnykh mikrolandshaftov i izobrazheniem ikh na aerofotosnimkakh).
Pirogov, A.G., et al, *Neftepromyslovoe stroitel'stvo,* 1980, No 8, p.4-6, In Russian 1 ref.
Pirogova, N.V., Tron', S.P
Swamps, Peat, Bearing strength, Aerial surveys, Photointerpretation, Landscape types, Vegetation patterns.

35-621
Device for anchoring pipelines. (Ustroistva dlia zakrepleniia truboprovodov).
Gumerov, A.G., et al, *Neftepromyslovoe stroitel'stvo,* 1980, No.8, p.6-7, In Russian. 1 refs.
Azmetov, Kh.A., Kairmova, R.Z.
Pipelines, Anchors, Swamps, Petroleum transportation.

35-622
Norms for designing pipeline anchors. (O normakh proektirovaniia ankernykh ustroistv dlia zakrepleniia truboprovodov).
Postnikov, V.V., et al, *Neftepromyslovoe stroitel'stvo,* 1980, No.8, p.7-10, In Russian.
Dizer, E.I.
Pipelines, Anchors, Swamps, Permafrost, Petroleum transportation.

35-623
Instantaneous deformation of peat in the general process of sagging ground consolidation. (Mgnovennaia deformatsiia torfianykh gruntov v obshchem protsesse konsolidatsii osadok).
Kukushkin, V.A., et al, *Neftepromyslovoe stroitel'stvo,* 1980, No 8, p 10-12, In Russian. 5 refs
Trofimov, V.L., Ulrovskaia, A.P
Foundations, Peat, Bearing strength, Settlement (structural), Soil compaction, Design.

35-624
Stability of the national power grid in East and West Siberia. (Ustoichivost' gosudarstvennoi vysotnoi seti v usloviiakh Zapadnoi i Vostochnoi Sibiri).
Barabanshchikov, S.G., et al, *Neftepromyslovoe stroitel'stvo,* 1980, No 8, p 14-16, In Russian 1 ref
Belykh, A.G.
Power lines, Power line supports, Stability, Permafrost beneath structures, Freeze thaw cycles, Active layer, Design.

35-625
Effect of transportation expenses on the cost of construction and assembly of petroleum industry objects in the Central Ob' River area. (Vliianie transportnykh raskhodov na stoimost' stroitel'no-montazhnykh rabot pri sooruzhenii neftepromyslovykh ob"ektov Srednego Priob'ia).
Purtov, P.G., et al, *Neftepromyslovoe stroitel'stvo,* 1980, No.8, p 20-23, In Russian.
Diudneva, N.I., Kolchanova, L.N
Swamps, Transportation, Petroleum industry, Construction materials, Cold weather construction, Cost analysis.

35-626
New design of excavators and bulldozers. (Novye konstruktsii ekskavatorov i bul'dozerov).
Lavrov, G.E., et al, *Neftepromyslovoe stroitel'stvo,* 1980, No 8, p 25-27, In Russian 1 ref
Shor, A.D
Earthwork, Excavation, Equipment, Frozen ground.

35-627
Modernizing gas dehydration equipment on northern fields. (Modernizatsiia oborudovaniia dlia podgotovki gaza severnykh mestorozhdenii).
Zibert, G.K., et al, *Gazovaia promyshlennost',* June 1980, No 6, p 2-3, In Russian
Gas pipelines, Natural gas, Petroleum industry, Dehydration.

35-628
Lightning protection in electrical installations of northern gas fields. (Obespechenie uslovii elektrobezopasnosti v elektroustanovkakh severnykh gazopromyslov).
Men'shov, B.G., et al, *Gazovaia promyshlennost',* May 1980, No 5, p 33-36, In Russian
Shkuta, A.F., Al'tshuler, E.E
Permafrost beneath structures, Electrical grounding, Lightning, Protection, Petroleum industry, Gas production.

35-629
Evaluating conditions of lightning protection on northern petroleum fields. (Otsenka uslovii elektrobezopasnosti severnykh promyslov).
Men'shov, B.G., et al, *Gazovaia promyshlennost',* Apr. 1980, No.4, p.35-37, In Russian 5 refs
Al'tshuler, E.B., Borodin, N.N
Lightning, Protection, Electrical grounding, Permafrost beneath structures, Petroleum industry.

35-630
New way of heating well plugging cements. (Novyi sposob nagreva tamponazhnogo rastvora).
Zel'tser, P.IA., *Gazovaia promyshlennost',* Jan 1980, No 1, p.25-26, In Russian. 1 ref
Wells, Cements, Cement admixtures, Permafrost, Petroleum industry, Drilling.

35-631
Plugging low temperature wells with cements containing complex chemical admixtures. (Tamponazhnyi rastvor s kompleksnymi khimicheskimi dobavkami dlia tsementirovaniia nizkotemperaturnykh skvazhin).
Zel'tser, P.IA., *Burenie,* 1980, No 3, p 20-21, In Russian.
Petroleum industry, Boreholes, Cements, Cement admixtures, Frozen ground.

35-632
Ice melting in solutions of potassium salts. (Razrushenie l'da v rastvorakh kalievykh solei).
Bykov, I.IU., et al, *Burenie,* Jan 1980, No 1, p 11-13, in Russian.
Sorokina, N.G.
Drilling fluids, Ice deterioration, Ground ice, Petroleum industry, Drilling, Solubility.

35-633
Accuracy of measuring zenith distances in freezing weather. {O tochnosti izmerenia zenitnykh rasstoianii zimoi}.
Menukhov, I I., *Geodezia i kartografia*, Feb 1980, No.2, p 32-33, In Russian
Geodetic surveys, Accuracy.

35-634
Determining loads on timber after first stages of hanging-wall collapse in permafrost areas. {K metodike opredelenia nagruzok na krep' pri pervykh obrusheniiakh osnovnol krovli v oblasti rasprostranenia mnogoletnel merzloty}.
Sleptsov, A.E., et al, *Fiziko-tekhnicheskie problemy razrabotki poleznykh iskopaemykh*, July-Aug 1980, No.4, p.101-103, In Russian. 6 refs
Kolmogorov, A.V.
Permafrost structure, Mine shafts, Roofs, Deformation, Supports, Mining, Loads (forces).

35-635
Width of the abutment pressure zone as an index of excavation stability in shallow mines of permafrost areas. {Shirina zony opornogo davlenia kak pokazatel' ustolchivosti gornykh vyrabotok neglubokikh shakht oblasti mnogoletnel merzloty}.
Plesnivtsev, V.V., *Fiziko-tekhnicheskie problemy razrabotki poleznykh iskopaemykh*, July-Aug 1980, No.4, p.103-106, In Russian. 5 refs.
Mining, Permafrost structure, Rock properties, Ground ice, Coal.

35-636
Experimental study of frozen rock strength in super-high frequency electromagnetic fields. {Eksperimental'nye issledovania prochnosti merzlykh porod v SVCh elektromagnitnom pole}.
Rikenglaz, L.E., et al, *Fiziko-tekhnicheskie problemy razrabotki poleznykh iskopaemykh*, May-June 1980, No.3, p 47-51, In Russian. 6 refs
Shonin, O.B., Khominskii, V.A
Mining, Electric fields, Excavation, Equipment, Frozen rocks, Strength.

35-637
Artesian well at Don Juan Pond.
McGinnis, L.D., *Antarctic journal of the United States*, Oct. 1979, 14(5), p.26-27, 3 refs
Brines, Boreholes, Artesian water, Antarctica—Don Juan Pond.
The author briefly describes a revisit to DVDP Hole 13 which has remained unfrozen since 1975. Water at -15.5C flowed from the hole for three days at a rate of 4 liters/min

35-638
Seismic refraction measurements from sea ice in western McMurdo Sound.
McGinnis, L.D., *Antarctic journal of the United States*, Oct. 1979, 14(5), p.34-35, 3 refs
Sea ice, Seismic refraction, Subsea permafrost, Antarctica—McMurdo Sound.
Three reversed seismic refraction profiles were shot in western McMurdo Sound in late November-early December 1978. Some preliminary conclusions are offered

35-639
Former extent of glacial ice in the Orville Coast region, Antarctic Peninsula.
Carrara, P., *Antarctic journal of the United States*, Oct. 1979, 14(5), p.45-46, 3 refs.
Glacial geology, Ice sheets, Antarctica—Orville Coast, Antarctica—Ronne Ice Shelf.
Field observations indicate that ice in the Orville Coast region of the Antarctic Peninsula was formerly at least 450 meters thicker than at present. Areas of the present-day Ronne Ice Shelf may have been occupied by a large ice sheet similar to that in the Ross Sea area today. Collapse of this postulated sheet may have taken place in the last 18,000 years.

35-640
Glacial geologic observations in the Dufek Massif and Forrestal Range, 1978-79.
Boyer, S.J., *Antarctic journal of the United States*, Oct 1979, 14(5), p 46-48, 6 refs.
Glacial geology, Antarctica—Dufek Massif, Antarctica—Forrestal Range, Antarctica—Pensacola Mountains, Antarctica—Davis Valley.
Reconnaissance studies were made in the northern Pensacola Mountains. A lengthy glacial record is particularly well displayed in Davis Valley. Spur ridges at many points may be remains of an ice-marginal drainage system formed during an early stage of the Antarctic ice sheet. Glacial erratics were found on the Saratoga Table, indicating ice at a level of about 400 m higher than at present. Sorna Bluff moraines and Davis Valley glaciation were also studied, and a highly tentative correlation of Pensacola Mountain glacial history with those of the McMurdo Sound area is offered

35-641
Tillite, glacial striae, and hyaloclastite associations on Hobbs Coast, Marie Byrd Land.
LeMasurier, W.E., et al, *Antarctic journal of the United States*, Oct 1979, 14(5), p.48-50, 5 refs
Melander, O., Grindley, G.W., McIntosh, W.C.
Glacial geology, Antarctica—Hobbs Coast.
On the Hobbs Coast are excellent exposure of tillite interbedded with hyaloclastite and fresh glacial striae on granitic bedrock. These provide direct evidence for a subglacial, rather than submarine environment of formation for the basaltic hyaloclastites. These findings add documentation to earlier interpretations that such hyaloclastites are a kind of glacial deposit, products of subglacial volcanic eruptions. The rounded, fresh granitic boulders in this region may be glacial erratics rather than xenoliths

35-642
Cape Spirit mirabilite beds.
Brady, H.T., et al, *Antarctic journal of the United States*, Oct. 1979, 14(5), p.50-52, 5 refs
Leckie, R.M., White, R
Glacial geology, Glacial geology, Antarctica—Spirit, Cape, Antarctica—Black Island.
In January 1979 further mapping was carried out on a large system of mirabilite beds 800 m north of Cape Spirit. It appears that these beds were deposited by a stagnant Ross Ice Shelf as it retreated from McMurdo Sound after the last Wisconsin glaciation

35-643
Ross Sea glaciations: events in the Lower Victoria Valley.
Borns, H.W., Jr., *Antarctic journal of the United States*, Oct 1979, 14(5), p 52-53, 3 refs
Ice sheets, Glacial geology, Antarctica—Ross Sea, Antarctica—Victoria Valley.
The purpose of this study of the dry valley areas of the Lower Victoria Valley was to determine the extent to which the area had been invaded from the seaward side by ice of the Ross Sea glaciations and if it had been, to examine the details of these events. Preliminary analysis suggests that ice flowing westward from the Ross Sea reached present elevations of at least 975 m. Samples of algae and calcareous concretions were taken which, when analyzed may indicate the age of one of the several terminal positions of the Victoria Lower Glacier

35-644
Glaciology and glaciogeomorphology in Victoria Land and Queen Maud Mountains.
Mayewski, P.A., *Antarctic journal of the United States*, Oct. 1979, 14(5), p 53, 3 refs
Ice sheets, Glacial geology, Antarctica—Rennick Glacier, Antarctica—Wright Valley, Antarctica—Queen Maud Mountains.
During the past year data analysis has been undertaken on the recent and past dynamics of several northern Victoria Land glaciers, the dynamics of the selected rock glaciers in Wright Valley, and on the weathering characteristics of dolerites in the Queen Maud Mountains

35-645
Scallop Hill Formation and associated Pliocene marine deposits of southern McMurdo Sound.
Leckie, R.M., et al, *Antarctic journal of the United States*, Oct 1979, 14(5), p 54-56, 8 refs
Webb, P.N
Glacial deposits, Sediments, Antarctica—Scallop Hill, Antarctica—Black Island, Antarctica—Minna Bluff, Antarctica—McMurdo Sound.
Field work in southern McMurdo Sound has revealed several distinctive lithofacies of Scallop Hill Formation sediments. These are described and the preferred explanation for their nature- glacial transport during an Ross Sea glaciation--offered. Other local facies from Brown Peninsula, Minna Bluff and other locations on Black Island are compared with Scallop Hill sediments

35-646
Glacial history of the Byrd-Darwin Glacier area, Transantarctic Mountains.
Denton, G.H., *Antarctic journal of the United States*, Oct. 1979, 14(5), p.57-58, 1 ref.
Ice sheets, Glacial geology, Antarctica—Byrd Glacier, Antarctica—Darwin Glacier, Antarctica—Hatherton Glacier.
The purposes of this study were to examine the early history of the ice sheet and to test hypotheses developed elsewhere in Antarctica about late Quaternary history, particularly during the last glacial-interglacial period. Morphologic features in both the Byrd-Darwin and McMurdo Sound areas can be explained if large portions of the Transantarctic Mountains were uplifted through a preexisting ice sheet. In the Byrd-Darwin Glacier area the exposed erosional terrain exhibits moraines, erratics and striations that attest to former fluctuations of outlet glaciers and ice streams. The data suggest that during the last glaciation there was little, if any, expansion of local East Antarctic ice, coupled with extensive ice-sheet grounding over the Ross Ice Shelf and in the Ross Sea

35-647
Pedology of the Darwin Glacier area.
Bockheim, J.G., et al, *Antarctic journal of the United States*, Oct 1979, 14(5), p 58-59, 5 refs
Wilson, S.C
Soil profiles, Glacial geology, Antarctica—Darwin Glacier.
Soils were used as a relative-age indicator and as a stratigraphic marker in separating glacial advances in the Darwin Glacier area. Morphology of soil stratigraphic units and surface weathering characteristics of moraines were analyzed. Results indicate that the Ross Ice Shelf became grounded in the Darwin Glacier area around 1 million yrs BP and was last grounded about 18,000 yrs BP. Like the Wright Valley, but unlike the Taylor Valley, the Darwin Glacier area has ice-free valleys that have not been glaciated as a result of thickening of the East Antarctic Ice Sheet in the past 3 million yrs

35-648
Ross Ice Shelf Project 1978-79.
Clough, J.W., *Antarctic journal of the United States*, Oct 1979, 14(5), p 60
Ice cores, Ice shelves, Antarctica—Ross Ice Shelf.
The final field season of the RISP is reported. Accomplishments include three holes drilled through the ice shelf and a core taken from the lower portion of the shelf by I.A. Zotikov of the USSR

35-649
Hot-water drilling and coring at site J-9, Ross Ice Shelf.
Browning, J.A., et al, *Antarctic journal of the United States*, Oct. 1979, 14(5), p 60-61
Bigl, R.A., Somerville, D.A.
Ice shelves, Ice cores, Drills, Drilling fluids, Antarctica—Ross Ice Shelf.
The author describes drills, techniques, and problems in drilling on Ross Ice Shelf. Differences between firn and ice require different drilling techniques and equipment. Favorable reports are given on the hot water drilling process

35-650
Studies of under-ice conditions at J-9, Ross Ice Shelf, during the 1979 winter.
Kvinge, T., et al, *Antarctic journal of the United States*, Oct. 1979, 14(5), p 61-63
Orheim, O
Ice shelves, Boreholes, Water temperature, Thermistors.
The Norwegians have installed a set of thermistors designed to measure at half-hour intervals for one year, the current and temperature conditions in a water column under the Ross Ice Shelf, and the temperature gradient across the ice-water interface, and record the measurements in a surface unit. The instrumentation is described and illustrated

35-651
Core drilling through Ross Ice Shelf.
Zotikov, I.A., et al, *Antarctic journal of the United States*, Oct. 1979, 14(5), MP 1337, p 63-64, 2 refs
Zagorodnov, V.S., Raikovskii, IU.V
Ice shelves, Ice coring drills, Drilling, Antarctica—Ross Ice Shelf.
The ice drill and ice drilling methods and fluids used to pull a core from the Ross Ice Shelf are described and a brief analysis of the core is made

35-652
Sea ice on bottom of Ross Ice Shelf.
Zotikov, I.A., et al, *Antarctic journal of the United States*, Oct. 1979, 14(5), MP 1336, p 65-66, 6 refs
Zagorodnov, V.S., Raikovskii, IU.V
Sea ice, Ice structure, Bottom ice, Antarctica—Ross Ice Shelf.
The authors describe the structure of the ice of Ross Ice Shelf as it appeared in a J-9 core. Comments are given on an unusual boundary layer showing in the core and conclusions and estimates on growth rate are made

35-653
Ross Ice Shelf glaciology.
Thomas, R.H., et al, *Antarctic journal of the United States*, Oct. 1979, 14(5), p 66-67, 9 refs.
MacAyeal, D.R.
Ice shelves, Physical properties, Mass balance, Antarctica—Ross Ice Shelf.
Measurements of Ross Ice Shelf ice mechanical properties have been made for 1973-1978 and prepared for publication. Measurements continued of the physical properties along with analysis of the ice sheet mass balance. It appears that the Ross Ice Shelf loses ice at the rate of 1 m/y through basal melting. Comments are made on some aspects of the physical appearance of the ice surface, its thickness and glacial history

35-654
Surface accumulation on Ross Ice Shelf.
Clausen, H.B., et al, *Antarctic journal of the United States*, Oct 1979, 14(5), p.68-72, 12 refs
Dansgaard, W., Nielsen, J.O., Clough, J.W
Ice shelves, Ice accretion, Fallout, Drill core analysis, Antarctica—Ross Ice Shelf.
Data derived from a number of ice cores from Ross Ice Shelf are analyzed for accumulation rates expressed in mm of water

equivalent of *Beta* and *delta* profile analysis advantages and disadvantages are discussed for both Greenland and Ross Ice Shelf. The analyses for the latter are also graphed and charted.

35-655

Temporal variations and correlations in the chemistry of snow on Ross Ice Shelf.

Molenar, J.V., et al. *Antarctic journal of the United States*, Oct. 1979, 14(5), p.72-74, 4 refs.

Warburton, J.A.

Snow composition, Ice shelves, Antarctica—Ross Ice Shelf.

Chemical analyses were made from 7 snow pits on Ross Ice Shelf during RISP investigations of 1974-75 and 1976-77. Variations in snow chemistry from the several sampling sites are charted and discussed and correlations between chemistry and accumulation, where they exist, are pointed out.

35-656

Enhanced enrichment of metals in precipitation on Ross Ice Shelf.

Warburton, J.A., et al. *Antarctic journal of the United States*, Oct. 1979, 14(5), p.75-76, 2 refs.

Anderson, A.V., Owens, M.S.

Snow composition, Precipitation (meteorology), Supercooled fog, Antarctica--Ross Ice Shelf.

Samples of fresh fallen snow under light wind conditions and diffuse deposits from supercooled fog were analyzed for mineral content. Results are shown in a graph and collection methods are discussed.

35-657

Heavy metal enrichment in antarctic snow and firn.

Warburton, J.A., et al. *Antarctic journal of the United States*, Oct. 1979, 14(5), p.76-78, 3 refs.

Molenar, J.V., Anderson, A.V.

Snow composition, Firn, Weather, Antarctica—Amundsen-Scott Station, Antarctica—Byrd Station, Antarctica—Ross Ice Shelf.

During the austral summers of 1971-72, 1974-75 and 1976-77 snow and firn samples were collected at Amundsen-Scott Station, Byrd Station, and several locations on the Ross Ice Shelf. Concentrations of sodium (Na), manganese (Mn) iron (Fe) and silver (Ag), in the snow and firn were determined. Cyclonic storm systems originating in the Southern Ocean often move in across the shelf penetrating to the mountains and beyond. These storms and other large scale air mass motions carry aerosols, particulates, and have meteors inland, enabling them to be precipitated onto the shelf. The ice shelf also is a region much affected by katabatic winds flowing from the Antarctic plateau. These winds could be responsible for bringing aerosol material onto the shelf from nonmarine sources, particularly from the Transantarctic Mountains and from high-pressure subsidence air masses containing both stratospheric and tropospheric components. (Auth. mod.)

35-658

Concentration and isotopic composition of CO2 occluded in the polar ice.

Deuser, W.G., *Antarctic journal of the United States*, Oct. 1979, 14(5), p.78, 2 refs.

Ice composition, Climatic changes, Atmospheric composition, Carbon dioxide.

The study compares past relationships between naturally accreted CO2 amounts in the atmosphere and climate changes. The objective is to anticipate climatic changes which may result from man induced accretion of CO2.

35-659

Subsurface measurements of McMurdo Ice Shelf.

Gow, A.J., et al. *Antarctic journal of the United States*, Oct. 1979, 14(5), MP 1338, p.79-80, 2 refs.

Kovacs, A.

Ice cores, Brines, Ice composition, Antarctica—McMurdo Sound.

Study of brine content of sea ice at McMurdo and its physical and chemical relationships to the ice and sea water was continued. Another continuing study concerns radar profiling up glacier from the exposed contact point of sea ice with the ice of Koettlitz Glacier.

35-660

Nitrogenous chemical composition of antarctic snow and ice.

Parker, B.C., et al. *Antarctic journal of the United States*, Oct. 1979, 14(5), p.80-82, 7refs.

Zeller, E.J.

Snow composition, Ice composition, Chemical analysis, Antarctica.

Objectives of the research include an understanding of (1) the nitrogenous chemical content of snow and ice of different age and from different geographic locations, (2) their concentration ranges, periodic, and nonperiodic fluctuations and (3) the sources and mechanisms which bring about these striking differences. Progress in this project is set out in tables, including some results of tests on a core from near Vostok Station. (Auth. mod.)

35-661

Saline discharge at the terminus of Taylor Glacier.

Keys, J.R., *Antarctic journal of the United States*, Oct. 1979, 14(5), p.82-85, 14 refs.

Glacial hydrology, Subglacial drainage, Antarctica—Taylor Glacier.

At intervals of one to a few years during the "non-summer" months, some thousands of cubic meters of saline water flow out from either a crevasse at the northern corner of the terminus of Taylor Glacier or a source beside the glacier near this crevasse. This fluid freezes to form a saline icing (frozen outwash fan cone, or ice platform) which extends over an ice-marginal stream delta and onto the piedmont ice of western Lake Bonney. When the discharge issues from the crevasse (the glacier discharge site) an ice marginal debris-covered mound is also partially covered. The icing is colored various shades of orange due to small amounts of hydrated iron oxides and silt. Some historic aspects of these flows, their individual volume and chemical content are presented. (Auth. mod.)

35-662

Gas studies: ice from Allan Hills meteorite site and Byrd Station.

Fireman, E.L., *Antarctic journal of the United States*, Oct. 1979, 14(5), p.85-86, 8 refs.

Ice sampling, Gas inclusions, Geochronology, Antarctica—Allan Hills.

Blue ice samples were taken from the Allan Hills meteorite fall area and analyzed for gas content with the possibility that the gas may constitute unique samples of the atmosphere of an important time period. Analysis equipment and procedures are discussed.

35-663

Glaciological studies in Allan Hills, 1978-79.

Annexstad, J.O., et al. *Antarctic journal of the United States*, Oct. 1979, 14(5), p.87-88, 3 refs.

Nishio, F.

Ice sheets, Ice surface, Geodetic surveys.

Physical features and extent of the blue ice field in the Allan Hills are described. Relationships between the ice and the meteorites found here are being considered as a possibility for determining the source(s) of the meteorites.

35-664

Byrd Glacier.

Hughes, T., *Antarctic journal of the United States*, Oct. 1979, 14(5), p.88-91, 6 refs.

Glacier ice, Glacier flow.

This study of ice stream dynamics links with earlier investigations of ice sheet and ice shelf dynamics, so that the dynamics of this major ice sheet, ice stream, ice shelf system can be addressed. It was done in conjunction with a separate glacial-geological investigation of the Byrd Glacier-Darwin Glacier region of Antarctica. The combined study is the first attempt to relate the present glaciology of a major antarctic ice stream to its glacial history, with the larger aim of understanding antarctic glacial history in terms of present glaciological processes. (Auth. mod.)

35-665

Microparticle deposition at South Pole.

Mosley-Thompson, E., et al. *Antarctic journal of the United States*, Oct. 1979, 14(5), p.91-93, 8 refs.

Thompson, L.G.

Ice cores, Drill core analysis, Firn stratification, Impurities, Antarctica—Amundsen-Scott Station.

Some 6128 samples from a South Pole firn core, 101 m long were analyzed in detail for particle concentration, size distribution, morphology, elemental constituents, and variations in all of these. The data are graphed and discussed.

35-666

Stable isotope and radio echo sounding investigations of Taylor Valley, Victoria Land.

Drewry, D.J., *Antarctic journal of the United States*, Oct. 1979, 14(5), p.93-94, 7 refs.

Ice cover thickness, Isotope analysis, Radio echo soundings, Antarctica—Taylor Glacier, Antarctica—Bonney, Lake.

The author reviews work done in 1978, then describes the 1979 program to gather ice samples for stable isotope analysis and to fly a radio echo sounding profile down the centerline of Taylor Glacier from the ice dome to Lake Bonney.

35-667

Airborne geophysical investigations of ice sheet and bedrock, 1978-79.

Drewry, D.J., et al. *Antarctic journal of the United States*, Oct. 1979, 14(5), p.95-96, 4 refs.

Meldrum, D.T., Jankowski, E., Neal, C.S.

Ice sheets, Radio echo soundings, Aerial surveys, Antarctica—West Antarctica.

During December 1978 and January 1979, the Scott Polar Research Institute undertook a sixth season of radio echo sounding in Antarctica to acquire data on the physical characteristics and dynamic/thermodynamic processes of the ice sheet and a second season of simultaneous magnetometry for sub ice geological studies. The principal objective for the 1978-79 season was to consolidate and extend a grid network in West Antarctica for geophysical investigation of the junction between the East Antarctic shield and West Antarctic accretionary plates. Several units, including a complex core area lying between the Ellsworth, Pensacola, and Horlick mountains were identified. As a result of this season's investigations and those in 1974-75 and 1977-78, a 50-kilometer square grid network now exists for about 1.4 million square kilometers of West Antarctica between ground lines of the Ross Ice Shelf and those of the Filchner and Ronne ice shelves. (Auth.)

35-668

Reflections of pulses from polar ice sheets.

Sivaprasad, K., *Antarctic journal of the United States*, Oct. 1979, 14(5), p.96-97, 1 ref.

Ice sheets, Ice models.

The radar echo sounding of polar ice indicates partial reflections within the ice sheet itself. The origin and nature of these radar reflections are the subject of much debate. Density variations of ice seem to be the most likely cause of the internal layering observed within the top 1,000 meters of the ice sheets. To simulate the variations some simple models have been considered and results from these models are presented here. In the models the variation of the dielectric constant owing to density variation is taken into account. Because the density variation is caused by the conversion of snow into ice over many thousands of years the density changes can be assumed to be either deterministic or random. (Auth.)

35-669

Research workshop on radio echo sounding of ice.

Sivaprasad, K., *Antarctic journal of the United States*, Oct. 1979, 14(5), p.98

Meetings, Radio echo soundings, Ice sheets.

A workshop entitled *Radio Echo Sounding of Ice* was held on 23-25 April 1978 at the New England Center for Continuing Education in Durham, New Hampshire. Organized by Dr. K. Sivaprasad the meeting was attended by 40 scientists from universities, government agencies, and research laboratories. It consisted of three principal sessions each including several informal presentations and open discussions. A major topic during the discussions was the radio echo sounding system developed by the Technical University of Denmark and currently used in Antarctica. (Auth.)

35-670

Geophysical investigation of the dome C area.

Beatley, C.R., et al. *Antarctic journal of the United States*, Oct. 1979, 14(5), p.98-100, 1 ref.

Jezek, K.C., Blankenship, D.D., Lovell, J.S., Albert, D.G.

Ice cover thickness, Geodetic surveys, Seismic prospecting.

During the 1978-1979 field season, the authors initiated a program of geophysical measurements at dome C that involved conducting a gravity and magnetic survey on a so-called double cross consisting of two 10 kilometer lines running north-south (grid) and spaced 1 kilometer apart, and two similar lines running east-west (grid). The program also included seismic shooting along portions of a 30 kilometer line extensive radar profiling along gravity and seismic lines testing of a new digital recording system, a detailed direct current resistivity survey out to a half-spacing of 1 kilometer, and many hours of magnetotelluric recording. Ice thickness measurements were made along the seismic and gravity lines with some thicknesses being >4 km. (Auth.)

35-671

Glaciology of dome C area.

Bolzan, J.F., et al. *Antarctic journal of the United States*, Oct. 1979, 14(5), p.100-101, 2 refs.

Palais, J.M., Whillans, I.M.

Ice sheets, Ice composition, Ice temperature.

With a view toward starting a field study of the mass balance and dynamics of the dome C area in a later year, preliminary investigations were made during the 1978-79 field season of the surface glaciology near the dome C camp. Pit studies close to the camp were used to assess the horizontal variation in certain stratigraphic quantities. Samples were collected from five vertical 3-meter profiles and six vertical 1-meter profiles. These samples are being analyzed for oxygen isotopic ratio, gross beta activity, and microparticle content for correlation with other stratigraphic studies in hopes of obtaining not only average accumulation values in the dome C area but also a understanding of the diagenetic processes occurring in the upper 3 meters. (Auth.)

35-672

180-meter core drilling at dome C and measurements in the 905-meter drill hole.

Gillet, F., et al. *Antarctic journal of the United States*, Oct. 1979, 14(5), p.101, 1 ref.

Rado, C.

Drill core analysis, Ice cores.

The task during the 1978-79 field season was to take *in situ* measurements of temperature and closure rate in the 905-meter hole, to drill a shallow hole beyond the closeoff depth for gas analysis, and also to take complementary surface samples to determine the accumulation rate in the dome C area. A team carried out this program between 7 December 1978 and 10 January 1979. Temperatures in the 905-meter drill hole were measured every 10 meters down to 540 meters, then every 20 meters down to 640 meters, and then every 50 meters down to 800 meters. The bottom of the hole was filled with kerosene so that it was not possible to get measurements for the rest of the hole. (Auth.)

35-673

Seasonal variation of total antarctic sea ice area, 1973-75.

Zwally, H.J., et al. *Antarctic journal of the United States*, Oct. 1979, 14(5), p.102-103, 4 refs.

Parkinson, C.L., Carsey, F.D., Gloersen, P., Campbell, W.J., Ramseier, R.O.

Sea ice distribution, Seasonal variations, Spaceborne photography.

Sea ice concentrations can be derived from 1.55-centimeter microwave brightness temperatures measured by the electrically scanning microwave radiometer (ESMR) on the satellite NIMBUS V. Using such measurements to calculate sea ice concentrations for most of the three-day periods in the years 1973 through 1975 and averaging the values for each month, the total areal extent of antarctic sea ice of various concentrations as it varies seasonally and annually was determined. (Auth.)

35-674

Simple parameterization for salt flux to upper ocean owing to freezing and melting at the surface.

Parkinson, C.L., *Antarctic journal of the United States*, Oct. 1979, 14(5), p.103-104, 3 refs.

Sea water, Salinity, Models.

A computerized model to determine the change in brininess of sea water as surface waters freeze or melt is presented. The process is significant in the formation of antarctic bottom water.

35-675

Relative diatom abundance as tool for monitoring winter sea ice in the fluctuations in southeast Atlantic.

DeFelice, D.R., *Antarctic journal of the United States*, Oct. 1979, 14(5), p.105-106, 8 refs.

Sea ice, Plankton.

The process of relating diatom abundance to sea temperature fluctuations which set the sea ice front is reviewed. Examination of *Islas Orcadas* core 1176-6A showed evidence of numerous fluctuations in the ice front position during the past 300,000 years.

35-676

Drifting buoy measurements on Weddell Sea pack ice.

Ackley, S.F., *Antarctic journal of the United States*, Oct. 1979, 14(5), MP 1339, p.106-108, 7 refs.

Sea ice, Drift, Temperature measurement.

The observational techniques of placing the buoys in the Weddell Sea are described, the drift record and the temperature measurement record are shown, and a preliminary assessment and interpretation of the data received is given.

35-677

Discharge of Weddell Sea ice into the belt of mid latitude westerlies.

Schwerdtfeger, W., *Antarctic journal of the United States*, Oct. 1979, 14(5), p.108-109, 4 refs.

Sea ice, Drift, Wind factors, Topographic effects.

The theory of meteorological and topographical conditions which favor movement of sea ice northward from the Weddell Sea into the prevailing westerlies is reviewed. Evidence of wind and temperature data at the surface and 850mb for stations in the Antarctic Peninsula is presented. The special conditions existing in the western Weddell Sea do are not found elsewhere in Antarctica.

35-678

Geological survey of east antarctic continental margin aboard USCGC *Glacier*.

Anderson, J.B., et al, *Antarctic journal of the United States*, Oct. 1979, 14(5), p.142-144, 1 ref.

Icebergs, Ice rafting, Ice edge, Ice shelves, Antarctica—Mertz Glacier, Antarctica—Ninnis Glacier.

An investigation of the continental margin between 140E and 150E was conducted to obtain geological and physical oceanographic data from closely spaced stations. This cruise marks the first comprehensive geologic survey of any part of the East Antarctic margin. Fifty-four geologic stations, 32 piston coring stations and 22 bottom grab stations were manned. Results of bathymetry, radiography of piston cores, iceberg counting, analysis of iceberg-entrained sediments, and ice front mapping are summarized.

35-679

Winter ice crystals at South Pole.

Ohtake, T., et al, *Antarctic journal of the United States*, Oct. 1979, 14(5), p.201-203, 9 refs.

Yogi, T.

Snow crystal structure, Precipitation (meteorology), Antarctica—Amundsen-Scott Station.

The formation mechanism of atmospheric ice crystals at the South Pole, the origins of moisture and condensation-freezing nuclei, and their contribution to the mass balance of the antarctic ice cover are studied. On about 300 days of each year, atmospheric ice crystals can be observed at the South Pole. Previous studies have discussed ice crystals during the austral summer. The work here concerns crystals during the austral winter. Ice crystals were collected on 59 days between 11 June and 23 August 1977 at air temperatures between -39.4 deg and -71.4 deg C. Precipitating ice crystals were sampled on slide glass plates coated with silicone oil, kerosene, or formvar solution and were photographed at low temperatures. The ice crystals collected were quite different from the typical snow crystals classified by Magono and Lee. We have classified them into six categories according to shape.

35-680

Radar reflectivity and precipitation rate studies at Palmer Station and Faraday Base.

Whinnery, R., et al, *Antarctic journal of the United States*, Oct. 1979, 14(5), p.212-213, 5 refs.

Barnhardt, B., Warburton, J.A.

Snowfall, Radar echoes, Ice crystal replicas.

An experiment to determine precipitation rates in snowfalls will be conducted cooperatively during the 1979 winter and 1979-80 summer field seasons in Antarctica by researchers of the Desert Research Institute and the British Antarctic Survey. The study will employ the x-band radar located at Palmer Station to record the reflectivity of clouds over Faraday Base which is 50 kilometers away in the Argentine Islands. A recording precipitation gage and ice crystal replicator will be stationed at Faraday Base. The experiment aims to ascertain the relationships between radar reflectivity from precipitating storms and the precipitation rate of the snow (water equivalent). (Auth.)

35-681

Dry Valley Drilling Project: summary of core storage Florida State University and sample distribution.

Cassidy, D.S., *Antarctic journal of the United States*, Oct. 1979, 13(5), p.231-232, 4 refs.

Cores, Dry Valley Drilling Project.

Procedures for handling the cores from the Dry Valley Drilling Project are described. Current methods of packing and refrigerated shipping work well. Sampling techniques are also outlined and an example of the records kept of sample distribution to various researchers included.

35-682

Ship operations, Deep Freeze 79.

Eckman, J.F., *Antarctic journal of the United States*, Oct. 1979, 14(5), p.234-235.

Icebreakers.

Two U.S. Coast Guard icebreakers supported the antarctic research program this season, *Glacier* and *Polar Star*. Cargo vessel *Schuyler Otis Bland* and the tanker *Maumee* supplied McMurdo once the ice channel was open. Ship operations are summarized. Because of propeller problems, the *Polar Star* was disabled and most icebreaking work was done by the USCGC *Glacier*.

35-683

Public works, Deep Freeze 79.

Evans, R.L., *Antarctic journal of the United States*, Oct. 1979, 14(5), p.235-237.

Water supply, Electric power, Ice runways, Snow roads, Antarctica—McMurdo Station.

In response to a long-time deterioration of McMurdo's physical plant, a new program was put into effect to establish a comprehensive facilities inspection program and to switch over from maintenance based on trouble-shooting to a system founded on programmed maintenance and upgrade. The accomplishments of the Public Works Department are listed. The Transportation Division opened the annual ice runway and road complex on new ice and built elevated snow roads linking Williams Field both with Scott Base and the runway.

35-684

Contractor support.

Murphy, R.L., *Antarctic journal of the United States*, Oct. 1979, 14(5), p.238-239.

Drilling, Shelters, Aircraft landing areas.

To support 305 scientific grantees, Holmes and Narver increased its own staff to 226 employees and put in its busiest season ever. Several projects were carried out in addition to setting up of field stations and other routine tasks. For example, at McMurdo two new two-story dormitories were built and old buildings demolished, a semipermanent shelter was built near the crater on Mount Erebus, and the USARP garage was remodelled and expanded. At Amundsen Scott, ground control moved to new quarters, and Palmer Station's small boat area was improved.

35-685

Water power and construction of complex hydraulic works during fifty years of Soviet rule.

(Urinov, D.M., ed, New Delhi, Amerind Publishing Co., 1979, 597p., TT74-52044, Translation of Gidroenergetika i kompleksnoe gidrotekhnicheskoe stroitel'stvo za 50 let Sovetskoĭ vlasti.

DLC TC485.G5213

Electric power, Hydraulic structures, Dams, Concrete structures, Earthwork, Permafrost.

35-686

Materials on the soils of Komi ASSR. (Materialy po pochvam Komi ASSR).

Zaboeva, I.V., ed, Syktyvkar, 1974, 96p., In Russian. For selected papers see 35-687 through 35-693. Refs. passim.

DLC S599.45.K594M37

Tundra, Taiga, Swamps, Cryogenic soils, Soil profiles, Peat, Podsol, Soil chemistry, Nutrient cycle, Soil formation.

35-687

Alpine tundra soils of the northern Urals. (Gornotundrovye pochvy Severnogo Urala).

Zaboeva, I.V., et al, Materialy po pochvam Komi ASSR (Materials on the soils of Komi ASSR) edited by I.V. Zaboeva, Syktyvkar, 1974, p.3-9, In Russian. 9 refs.

Kazakov, V.G.

DLC S599.45.K594M37

Alpine tundra, Cryogenic soils, Soil formation, Soil profiles, USSR—Ural Mountains.

35-688

Soils of hummocky peat bogs in the Far North. (Pochvy bugristykh torfianikov Krainego Severa).

Popov, V.A., Materialy po pochvam Komi ASSR (Materials on the soils of Komi ASSR) edited by I.V. Zaboeva, Syktyvkar, 1974, p.10-16, In Russian. 13 refs.

DLC S599.45.K594M37

Tundra, Forest tundra, Taiga, Swamps, Peat, Cryogenic soils, Soil formation, Soil composition.

35-689

Oxidation-reduction processes and migration of mobile compounds in gley-podsol soils of northern taiga in Komi ASSR. (K kharakteristike okislitel'no-vosstanovitel'nykh protsessov i migratsii podvizhnykh soedinenii v gleepodzolistoi pochve podzony severnoi taigi Komi ASSR).

Tsypanova, A.N., Materialy po pochvam Komi ASSR (Materials on the soils of Komi ASSR) edited by I.V. Zaboeva, Syktyvkar, 1974, p.25-30, In Russian. 12 refs.

DLC S599.45.K594M37

Taiga, Landscape types, Cryogenic soils, Soil chemistry, Chemical composition, Soil formation.

35-690

Biologic activity of some soils in Komi ASSR. (Biologicheskaia aktivnost' nekotorykh pochv Komi ASSR).

Stenina, T.A., Materialy po pochvam Komi ASSR (Materials on the soils of Komi ASSR) edited by I.V. Zaboeva, Syktyvkar, 1974, p.35-42, In Russian. 9 refs.

DLC S599.45.K594M37

Tundra, Taiga, Cryogenic soils, Soil microbiology, Landscape types.

35-691

Humus profile and some properties of typical podsol in the northeastern European USSR. (Gumusovyi profil' i nekotorye svoistva tipichnykh podzolistykh pochv severo-vostoka Evropeĭskoĭ chasti SSSR).

Archegova, I.B., Materialy po pochvam Komi ASSR (Materials on the soils of Komi ASSR) edited by I.V. Zaboeva, Syktyvkar, 1974, p.43-49, In Russian. 10 refs.

DLC S599.45.K594M37

Podsol, Cryogenic soils, Taiga, Soil profiles, Soil composition, Vegetation factors.

35-692

Obtaining properties of humus substances by the paper chromatography and horizontal electrophoresis techniques. (Kharakteristika svoĭstv gumusovykh veshchestv priemami raspredelitel'noĭ bumazhnoĭ khromatografii i gorizontal'nogo elektroforeza).

Sloboda, A.V., Materialy po pochvam Komi ASSR (Materials on the soils of Komi ASSR) edited by I.V. Zaboeva, Syktyvkar, 1974, p.50-57, In Russian. 5 refs.

DLC S599.45.K594M37

Taiga, Laboratory techniques, Cryogenic soils, Peat, Podsol, Soil chemistry, Organic soils, Tests.

35-693

Regime of nitrogen and ash elements in the soil-plant system of cultivated central taiga cenoses, Komi ASSR. (Rezhim azota i zol'nykh elemen ov v sisteme pochva-rasteniе v kul'turnykh tsenozakh srednei taĭgi Komi ASSR).

Zabolotskaia, T.G., Materialy po pochvam Komi ASSR (Materials on the soils of Komi ASSR) edited by I.V. Zaboeva, Syktyvkar, 1974, p.64-69, In Russian. 3 refs.

DLC S599.45.K594M37

Taiga, Cryogenic soils, Nutrient cycle.

35-694

Analysis of the brittle to ductile transition in polycrystalline ice under tension.

Schulson, E.M., *Cold regions science and technology*, Nov. 1979, 1(2), p.87-91, 17 refs.

Ice crystal structure, Brittleness, Ice deformation, Stresses, Microstructure, Temperature effects, Strains, Analysis (mathematics).

35-695

Point source bubbler systems to suppress ice.

Ashton, G.D., *Cold regions science and technology*, Nov. 1979, 1(2), MP 1326, p.93-100. For another version see 33-4224. 8 refs.

Ice removal, Bubbling, Ice melting, Heat transfer, Ice cover thickness, Air temperature, Water temperature, Mathematical models.

An analysis of a point source bubbler system used to induce local melting of an ice cover is presented. The analysis uses empirical results of bubbler plume experiments and impingement heat transfer results to determine the rate of melting at the

underside of an ice cover. Through a simple energy budget analysis of the ice cover, the melting of the ice cover and resulting extent of open water are determined as a function of air temperatures, depth and air discharge of the source, and water temperature. The analysis leads to a numerical simulation and an example simulation is presented

35-696
Constitutive laws for ice.
Morland, L.W., *Cold regions science and technology*. Nov. 1979, 1(2), p 101-108, 15 refs.
Ice crystals, Ice creep, Stresses, Strains, Viscoelasticity, Temperature effects.

35-697
Fluidization of snow.
Maeno, N., et al, *Cold regions science and technology*. Nov. 1979, 1(2), p 109-120, 16 refs
Nishimura, K.
Snow mechanics, Ice mechanics, Snowdrifts, Particles, Snowflakes, Air flow, Air temperature, Heat transfer, Microstructure, Analysis (mathematics), Experimentation.

35-698
Solar reflectance of a snow field.
Choudhury, B.J., et al, *Cold regions science and technology*. Nov. 1979, 1(2), p 121-128, 17 refs.
Chang, A.T.C.
Snow optics, Brightness.

35-699
Fast ice regimes of the Beaufort and Chukchi Sea coasts, Alaska.
Barry, R.G., et al, *Cold regions science and technology*. Nov. 1979, 1(2), p.129-152, Refs p.150-152.
Moritz, R.E., Rogers, J.C.
Fast ice, Ice conditions, Sea ice distribution, Remote sensing, LANDSAT, Ice ridges, Maps, Beaufort Sea, Chukchi Sea.

35-700
Preparation of polycrystalline ice specimens for laboratory experiments.
Cole, D.M., *Cold regions science and technology*. Nov. 1979, 1(2), MP 1327, p.153-159, 10 refs.
Ice crystals, Ice sampling, Ice structure, Laboratory techniques, Ice mechanics, Porosity, Bubbles.

35-701
Rubber in asphalt may cut skidding; tests to gage road icing reduction. *Engineering news-record*. May 1, 1980, 204(18), p.24
Rubber, Concrete admixtures, Bituminous concretes, Skid resistance, Road icing, Ice prevention.

35-702
Rolling resistance of aircraft wheels in dry snow. [Flygplanshjuls rullmotstånd i torr nysnö],
Kihlgren, B., *Sweden Statens väg- och trafikinstitut. Rapport*, 1977, No.128, 22p. + tables, In Swedish with English summary.
Airplanes, Aircraft landing areas, Rubber snow friction, Vehicle wheels, Snow cover effect, Snow depth, Friction, Rolling friction.

35-703
Design and operation of airfields.
Glushkov, G.I., et al, *U.S. Army Foreign Science and Technology Center. Technical translation*, Aug. 1980, FSTC-HT-566-78, 441p., Translation of Ustroĭstvo i ekspluatatsiia aerodromov, Moscow, Transport, 1977, 320p. 14 refs.
Raev-Bogoslovskiĭ, B.S
Airports, Pavements, Runways, Snow roads, Ice roads, Cold weather operation, Snow compaction, Aircraft landing areas, Analysis (mathematics).

35-704
Artificial freezing of the ground in underground construction.
Trupak, N.G., *U.S. Army Foreign Science and Technology Center. Technical translation*, Mar. 1979, FSTC-HT-1020-78, 452p., ADB-051 952L. For Russian original see 29-63. 31 refs.
Soil freezing, Artificial freezing, Foundations, Subsurface structures, Tunneling (excavation), Mining.

35-705
Wintertime flow distribution in river channels.
Shen, H.T., et al, *American Society of Civil Engineers. Hydraulics Division. Journal*, May 1980, 106(HY5), p.805-817, 17 refs.
Ackermann, N.L.
River flow, River ice, Channels (waterways), Roughness, Analysis (mathematics), Ice cover effect.

35-706
Occurrence of salt and lead in snow dump sites.
Scott, W.S., *Water, air and soil pollution*, 1980, Vol.13, p.187-195, 5 refs.
Snow composition, Meltwater, Water pollution, Soil pollution, Soil chemistry, Salting, Lead (metal).

35-707
Atlas of mean winter temperature departures from the long-term mean over the contiguous United States 1895-1979.
Diaz, H.F., Asheville, North Carolina, National Climatic Center, Apr. 1980, 88p., 4 refs.
Temperature variations, Air temperature, Winter, Isotherms, Mapping, United States.

35-708
Stability of slopes in permafrost.
McRoberts, E.C., Edmonton, University of Alberta, Dept. of Civil Engineering, 1973, 370p., Ph.D. thesis Refs p 239-248.
Slope stability, Landslides, Engineering geology, Permafrost mass transfer, Frozen ground mechanics, Soil strength, Bearing strength, Periglacial processes, Ground thawing, Shear strength.

35-709
Glaciology of mountain regions (snow cover, avalanches and glaciers). [Gliatsiologiia gornykh oblasteĭ (snezhnyĭ pokrov, laviny i ledniki)],
Suslov, V.F., ed, *Srednеaziatskiĭ regional'nyĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1980, Vol.71, 144p., In Russian. For selected papers see 35-710 through 35-723. Refs passim.
Drozdovskaia, N.F., ed.
Mountain glaciers, River basins, Glacier ice, Ice surface, Snow cover distribution, Snow accumulation, Glacial hydrology, Glacier ablation, Glacier surges, Glacier alimentation, Avalanches, Avalanche forecasting, Snow surveys, Avalanche engineering, Snow depth, Charts.

35-710
Using satellite data in mathematical modeling of snow cover formation in mountains. [Ispol'zovanie sputnikovoĭ informatsii v matematicheskoĭ modeli formirovaniia snezhnogo pokrova v gorakh],
Konovalov, V.G., *Srednеaziatskiĭ regional'nyĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1980, Vol.71, p.3-10, In Russian. 22 refs.
Mountains, Snow cover distribution, Snow accumulation, Aerial surveys, Spacecraft, Mathematical models.

35-711
Problems in avalanche classification. [Problemy klassifikatsii lavin],
Kanaev, L.A., *Srednеaziatskiĭ regional'nyĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1980, Vol 71, p.11-24, In Russian. 14 refs.
Slope processes, Avalanches, Classifications, Avalanche formation, Snow cover structure, Snow water content, Snow density.

35-712
Compiling avalanche cadasters for unexplored areas taking the eastern part of the Ketmen' Range as an example. [Opyt sostavleniia kadastra lavin neissledovannogo raiona na primere vostochnoĭ chasti khr Ketmen'],
Akaf'eva, K.V., et al, *Srednеaziatskiĭ regional'nyĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1980, Vol.71, p.25-34, In Russian.
Voĭtkovskiĭ, V.K., Glazovskaia, T.G., Okolov, V.F
Snow surveys, Avalanche formation, Maps, Snow depth, Snow cover distribution, Avalanche triggering.

35-713
Basic problems in forecasting avalanche danger. [Osnovnye problemy prognozirovaniia lavinnoĭ opasnosti],
Drozdovskaia, N.F., et al, *Srednеaziatskiĭ regional'nyĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1980, Vol 71, p.35-40, In Russian. 4 refs
Kanaev, L.A., Sezin, V.M.
Avalanche forecasting, Avalanche engineering, Avalanche mechanics, Avalanche formation, Avalanche triggering.

35-714
Drop height and ejection distance of avalanches, ice and rock cave-ins. [Dal'nosti vybrosa i vysoty padeniia lavin, lednikovykh i gornykh obvalov],
Moskalev, IU.D., *Srednеaziatskiĭ regional'nyĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1980, Vol.71, p.41-50, In Russian. 9 refs.
Avalanche formation, Avalanche mechanics, Avalanche engineering, Slope processes, Snowquakes, Icequakes, Landslides.

35-715
Factors determining snowfall intensity and avalanche formation from new snow in the Zailiyskiy Alatau mountains. [O faktorakh opredeliaiushchikh obil'nye snegopady i skhod lavin iz svezhevypavshego snega v gornykh raionakh Zailiĭskogo Alatau],
Kondrashov, I.V., *Srednеaziatskiĭ regional'nyĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1980, Vol.71, p 51-58, In Russian. 3 refs
River basins, Avalanche forecasting, Avalanche formation, Avalanche triggering, Snowfall, Snow accumulation, Meteorological factors.

35-716
Quantitative evaluation of the degree of avalanche danger. [K voprosu o kolichestvennoĭ otsenke stepeni lavinnoĭ opasnosti],
Sezin, V.M., et al, *Srednеaziatskiĭ regional'nyĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1980, Vol.71, p.59-66, In Russian. 5 refs.
Ivanova, N.L.
Avalanche forecasting, Avalanche formation, Avalanche triggering, Snow cover stability, Snow accumulation.

35-717
Calculating the effect of morainal deposits on glacier melting. [Metod rascheta vliianiia morennykh otlozheniĭ na taianie lednikov],
Denisov, IU.M., *Srednеaziatskiĭ regional'nyĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1980, Vol.71, p.67-80, In Russian. 9 refs.
Glacier ice, Glacier ablation, Moraines, Ice melting.

35-718
Pulsating glaciers of the Gissar-Alay Mountains. [Pul'siruiushchie ledniki Gissaro-Alaia],
Glazyrin, G.E., et al, *Srednеaziatskiĭ regional'nyĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1980, Vol.71, p.81-100, In Russian. 18 refs.
Shchetinnikov, A.S.
Glaciation, Aerial surveys, Glacier surges, Spaceborne photography, Photointerpretation, USSR—Gissar-Alay Mountains.

35-719
Dependence of annual glacier ablation on mean summer air temperature. [K voprosu o zavisimosti godovoĭ abliatsii na lednikakh ot sredneĭ letneĭ temperatury vozdukha],
Vilesov, E.N., et al, *Srednеaziatskiĭ regional'nyĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1980, Vol.71, p.101-104, In Russian. 4 refs.
Glazyrin, G.E., Nozdriukhin, V.K.
Glacier ablation, Air temperature, Radiation balance.

35-720
Snow accumulation on the GGP glacier (northern slope of the Gissar Range). [Akkumuliatsiia snega na lednike GGP (severnyĭ sklon Gissarskogo khrebta)],
Kuznetsov, N.A., *Srednеaziatskiĭ regional'nyĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1980, Vol 71, p 105-111, In Russian. 3 refs.
Snow accumulation, Snow cover distribution, Glacier surfaces, Rock streams, Moraines, Vegetation factors, USSR—Gissar Range.

35-721
Glacier surges on the northern slopes of the Petr Pervyy and the Akademiia Nauk ranges. [Kharakteristika pul'siruiushchikh lednikov severnykh sklonov khrebtov Petra Pervogo i Akademii Nauk],
Sannikov, A.G., *Srednеaziatskiĭ regional'nyĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1980, Vol.71, p 112-119, In Russian. 8 refs
Mountain glaciers, Glacier ablation, Glacial hydrology, Glacial rivers, Glacier surges, Glacier alimentation, Avalanches, Snowdrifts.

35-722
Evaluating the magnitude of diurnal regulation of glacial runoff. [Otsenka velichiny sutochnogo regulirovaniia stoka lednikov],
Sokolov, D.P., et al, *Srednеaziatskiĭ regional'nyĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1980, Vol.71, p.120-126, In Russian. 5 refs
Spiriaev, A.V.
Glacier ablation, Glacial hydrology, Glacial rivers, Runoff, Flow rate, Seasonal variations.

35-723
Snow cover distribution over the Abramov glacier in years of average and maximum snowfall intensity. [Raspredelenie snezhnogo pokrova po ledn. Abramova v ekstremal'nye i srednii po snezhnosti gody],
Nozdriukhin, V.K., et al. *Srednaziatskii regional'nyi nauchno-issledovatel'skii institut. Trudy*, 1980. Vol.71, p.133-137. In Russian. 4 refs.
Neupokoev, V.A., Em, F.S.
Glacier surfaces, Snow cover distribution, Snow accumulation, Snow surveys, Charts, Snow depth.

35-724
Proceedings.
Conference on Soil-Water Problems in Cold Regions, 4th, Calgary, Alberta, Canada, Sep. 19-20, 1979. *Cold regions science and technology*, May 1980, 3(2/3), 262p., Refs. passim For individual papers see 35-725 through 35-742.
Luthin, J.N., ed.
Soil water migration, Frozen ground physics, Heat transfer, Unfrozen water content, Soil freezing, Frost heave, Ground ice, Hydraulics, Meetings.

35-725
Thermally induced water migration in frozen soils.
Perfect, E., et al. *Cold regions science and technology*, May 1980, 3(2/3), p.101-109, 9 refs.
Williams, P.J.
Frozen ground thermodynamics, Soil water migration, Heat transfer.

35-726
Model for frost heave including overburden.
Hopke, S.W., *Cold regions science and technology*, May 1980, 3(2/3), p.111-127, 41 refs
Frost heave, Frozen ground mechanics, Mass transfer, Heat transfer, Ground ice, Ice lenses, Ice pressure, Mathematical models.

35-727
Effect of wind on heat transfer in snow.
Reimer, A., *Cold regions science and technology*, May 1980, 3(2/3), p.129-137, 15 refs
Snow thermal properties, Heat transfer, Wind factors, Snow heat flux, Mass transfer, Snow density, Thermal diffusion.

35-728
Low temperature phase changes in montmorillonite and nontronite at high water contents and high salt contents.
Anderson, D.M., et al, *Cold regions science and technology*, May 1980, 3(2/3), MP 1330, p.139-144, 8 refs.
Tice, A.R.
Unfrozen water content, Salinity, Temperature effects, Phase transformations, Soil freezing, Clays, Ions, Low temperature tests.
Prior work has revealed the existence of one or more low temperature phase changes in clay water systems in the temperature range -20C to about -50C The number and the temperatures at which these phase changes appear seems to be associated with the type of exchangable ion(s) and the number and nature of individual water domains present In this paper, we report the results of low temperature differential calorimetry on montmorillonite and nontronite clays at high water and high salt contents The presence of electrolytes at high concentration is shown to have a very marked effect The low temperature phase changes are completely absent at high electrolyte concentrations in these clay water systems The presence of electrolytes also was observed to have a distinctive effect on the shape of the initial freezing peak associated with ice segregation

35-729
Simple energy balance model of ice segregation.
Outcalt, S., *Cold regions science and technology*, May 1980, 3(2/3), p.145-151, 8 refs.
Soil freezing, Frost heave, Heat balance, Ice growth, Ice lenses, Surface temperature, Water table, Mathematical models.

35-730
Snowmelt infiltration into seasonally frozen soils.
Kane, D.L., *Cold regions science and technology*, May 1980, 3(2/3), p.153-161, 9 refs.
Snowmelt, Seepage, Frozen ground, Seasonal freeze thaw, Soil water migration, Water content, Ground ice.

35-731
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35-940
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Martynov, V., *Morskoi flot*, 1980, No 8, p 49, In Russian
Ice navigation, Icebreakers, Design, Propellers, Engines, Equipment.

35-943
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Radio echo soundings, Glaciers, Aerial surveys, Norway—Svalbard.

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Snow removal, Cost analysis, Snowfall, Equipment.

35-945
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35-946
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35-947
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35-948
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Mines (excavations), Coal, Environmental impact, Permafrost preservation, Land reclamation, Vegetation, Hydrology, Animals, Legislation, United States—Alaska.

35-949
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Periglacial processes, Terrain identification, Landforms, Mountains, United States—Alaska—Kenai Mountains.

35-950
Principles of classification of lithocryogenic processes and phenomena. (Printsipy klassifikatsii litokriogennykh protsessov i iavlenii).
Vtiurin, B.I., et al, *Geomorfologiia* July-Sep 1980, No 3, p 13-22, In Russian with English summary 13 refs
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Geocryology, Classifications, Soil water, Phase transformations, Ground ice, Ice formation, Soil freezing, Frost penetration, Permafrost, Seasonal freeze thaw, Frost weathering, Permafrost hydrology.

35-951
Relief-forming activity of the Ross and McMurdo Shelf glaciers, Antarctica. (Rel'efoobrazuiushchaia deiatel'nost' shel'fovykh lednikov Rossa i Mak-Merdo, Antarktida).
Miagkov, S M., *Geomorfologiia*, July-Sep 1980, No 3, p 84-91, In Russian with English summary 18 refs
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The author describes the mechanism of exaration (glacial erosion) at the sea floor by shelf glaciers. The exaration rate is calculated to be not less than 1 cm per year at loose sediments and 1.0 to 1.5 mm per year at rock floor. Typical features of exaration topography are stated, they are formed by shelf glaciers and emerged due to tectonic uplift of the Transantarctic Mountains (sub horizontal exaration terraces crossing flatbottomed valleys now situated above mountain glaciers surface). Validation is developed of loose deposits formed by shelf glaciers (Auth.)

35-952
New data on structural geomorphology of coastal plains and the continental shelf of East Arctic seas in the USSR. (Novye dannye po strukturno-geomorfologicheskomu stroeniiu primorskikh ravnin i shel'fa Vostochno-Arkticheskikh morei SSSR).
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Geomorphology, Permafrost distribution, Subsea permafrost, Mapping, Arctic Ocean.

35-953
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Slope processes, Rock streams, Solifluction, Frost weathering, Avalanches, USSR—Tien Shan.

35-954
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Mining, Excavation, Dust control, Permafrost.

35-955
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Taiga, Forest soils, Landscape types, Frost penetration, Seasonal freeze thaw, Environmental protection, Plant ecology.

35-956
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35-957
Land reclamation effect on hydrophysical, properties and biologic activity of bog soils in northern taiga. (Vliianie obrabotki torfiano-bolotnykh pochv severnoi taigi na ikh vodno-fizicheskie svoistva i biologicheskuiu aktivnost').
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35-959
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Characteristics of soil formation in the northern taiga spruce biogeocenoses of the Kola Peninsula.
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Taiga, Soil formation, Podsol, USSR—Kola Peninsula.

35-961
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35-962
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Forest soils, Soil formation, Podsol, Chernozem, Soil microbiology, Leaching, Forest land, Landscape types, Bibliographies.

35-963
Problems of lightening underground structures and methods of constructing them under permafrost conditions.
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35-964
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35-965
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35-966
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35-967
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Stefan problem, Phase transformations, Boundary value problems.

35-968
Experimental basis for modeling moisture-ice fields in rocks allowing for landscape structure. (Postroenie eksperimental'noi osnovy dlia modelirovaniia polei vlazhnosti-l'distosti porod s uchetom landshaftnogo stroeniia).
Kiuntsel', V.V., et al, *Russia Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia Izvestiia vysshikh uchebnykh zavedenii. Geologiia i razvedka*, May 1980, No.5, p 80-84. In Russian. 5 refs
Pendin, V.V.
Engineering geology, Frozen ground strength, Soil freezing, Phase transformations, Ground ice, Soil freezing, Models, Permafrost.

35-969
Unloading cargo on fast ice. (Na ledovyi pripai).
Zemlin, S., *Tyl i snabzhenie sovetskikh vooruzhennykh sil*, May 1980, No.5, p.70-71. In Russian
Military equipment, Military transportation, Logistics, Ships, Unloading, Fast ice, Sea ice, Ice strength.

35-970
Winter operation of motor vehicles. (Ekspluatatsiia avtomobilei zimoi).
Simonov, A., *Tyl i snabzhenie sovetskikh vooruzhennykh sil*, Jan. 1980, No.1, p 69-71. In Russian
Military transportation, Motor vehicles, Fuels, Lubricants, Winter maintenance, Cold weather performance.

35-971
Flying under complicated conditions. (Obespechenie poletov v slozhnykh usloviiakh).
Fedosenko, N., *Vestnik protivovozdushnoi oborony*, Feb 1980, No 2, p 33-36. In Russian
Military transportation, Aircraft landing areas, Airports, Winter maintenance.

35-972
Operation of diesel electric power plants beyond the polar circle. (Osobennosti ekspluatatsii DES v usloviiakh Zapolar'ia).
Kuchuk, IU., *Vestnik protivovozdushnoi oborony*, Feb. 1980, No 2, p.58-60. In russian
Military facilities, Electric power, Diesel engines, Polar regions.

35-973
Fracture behavior of ice in Charpy impact testing.
Itagaki, K., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, June 1980, CR 80-13, 13p, ADA-089 920, 17 refs
Sabourin, L.
Ice cracks, Fracturing, Impact tests, Temperature effects, Doped ice, Ice composition, Ice crystal structure.
Specimens prepared from various types of ice without introducing excessive defects were tested at temperatures ranging from -2 to -190C. These tests indicated slightly higher Charpy values at lower temperatures and in more highly dispersed material concentrations. Three modes of fracture occurred during testing. Depending on the temperature and the material composition, either of the first two modes, normal fracture or multiple fracture, will appear and will show a normal frequency distribution of Charpy values in each type of ice. The third mode, fracture from both ends, which frequently occurred in the (NH4F) doped ice, gave Charpy values two to five times higher than the mean value for normal fracture. It can therefore be concluded that certain types of doping can alter the mode of fracture through which drastic modifications of impact resistance may be possible.

35-974
Sediment displacement in the Ottauquechee River—1975-1978.
Martinson, C., *U.S. Army Cold Regions Research and Engineering Laboratory*, May 1980, SR 80-20, 14p, ADA-089 737, 3 refs
Sediment transport, Bottom sediment, Ice scoring, Ice erosion, Banks (waterways), River ice, Hydrology.
A three-year study of sediment displacement was conducted on a short section of the Ottauquechee River in Vermont that has erosional problems caused by ice. The results of cross sectional surveys showed large quantities of the bank eroded and deposition in the bed within the study area. The erosion appears to have been caused by 1) the ice scouring the banks and 2) ice plugging the channel and diverting the flow toward the banks.

35-975
Roofs in cold regions: Marson's Store, Claremont, New Hampshire.
Tobiasson, W., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, June 1980, SR 80-25, 13p, ADA-089 788.
Korhonen, C.
Roofs, Bitumens, Cold weather performance.
A reinforced, single-ply PVC membrane was examined five years after being applied over a leaky, built-up, bituminous membrane. The bare PVC membrane was dirty, poorly drained and littered with broken glass, nails and such, yet no flaws were evident on leaks reported. Even at 0 F the PVC was quite flexible. Diagonal wrinkles at a parapet wall were attributed to workmanship, other observations suggested that membrane shrinkage had not occurred. The membrane has functioned well for five years and years and appears to be in good condition.

35-976
Review of techniques for measuring soil moisture *in situ*.
McKim, H.L., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Aug. 1980, SR 80-31, 17p, ADA-089 974, Refs, p.13-17.
Walsh, J.E., Arion, D.N.
Soil water, Electromagnetic properties, Tensile properties, Climatic factors.
Recently there has been an increased interest in the in-situ measurement of soil moisture content in the areas of hydrology, meteorology, agriculture and environmental studies. Current methods generally have limitations, depending upon the use of the data, that greatly influence acquisition and reliability of the soil moisture determination. This report discusses gravimetric, nuclear, electromagnetic, tensiometric and hygroscopic techniques and the advantages and disadvantages of using the techniques. Emphasis is placed on the tensiometric and electromagnetic techniques. These two measurements when coupled would supply information on the wetting and drying soil moisture characteristic curves and thereby provide a means of tracing moisture movement under field conditions in cold climates.

35-977
New Hampshire field studies of membrane encapsulated soil layers with additives.
Eaton, R A , et al, *U S Army Cold Regions Research and Engineering Laboratory*, Aug 1980, SR 80-33 46p , 20 refs
Berg, R L
Soil freezing, Frost penetration, Soil stabilization, Soil water, Frost resistance, Pavements, Admixtures, Liming, Design.
This report describes the construction instrumentation and performance of membrane encapsulated soil layer (MESL) pavement test sections at the U S Army Cold Regions Research and Engineering Laboratory in Hanover New Hampshire from 1973 to 1978 Membrane encapsulated soil layer construction involves using a waterproof membrane to protect low grade soils from absorbing moisture especially during the freezing process Most of these lower grade soils are frost-susceptible in these soils water can be drawn to the freezing zone to form ice lenses which in turn cause heaving of the surface Lime flyash and sodium chloride were added to a silt material prior to encapsulation These additives were incorporated to add strength to the silt, absorb excess moisture, and increase its load-supporting capabilities Results show that 1) the moisture content within the MESL sections remained relatively constant over the five years of testing, 2) a nonencapsulated lime-flyash stabilized silt material heaved 8 8 times as much as the identical material which was encapsulated 3) the lime-flyash-stabilized MESL had twice the strength of the plain or salt-stabilized MESL 4) the silt with the additives had less frost heave within the MESL than the untreated silt In summary MESL s can be constructed to perform well in cold region thereby replacing high quality aggregates which are being depleted

35-978
Making the forestry resources accessible in the Baykal- Amure-Magistrate region.
Il'ina, L N , *U S Army Cold Regions Research and Engineering Laboratory*, July 1980, TL 739, 12p , ADA-089 783, Translated from Geographische Berichte, 1979, 90(1), p 37-46 15 refs
Forestry, Revegetation, Natural resources, USSR—Baykal Lake.
In the identification of forest resources, the total complex of the forest is considered, including raw material supply as well as environmental and social aspects Territorial composition and characteristics of the resources are assessed evaluation maps covering the forest resources formulated and a utilization system for the resources established

35-979
Forecasting research and control of recoverable natural resources of the extreme North.
Gel'berg, M G., et al, *U S Army Cold Regions Research and Engineering Laboratory* July 1980, TL 740, 45p , ADB-051 620L, For Russian original see 34-958 10 refs
Natural resources, Tundra, Taiga, Vegetation, Ecosystems, Environmental protection, Forecasting, Arctic landscapes.

35-980
Indicatory role of the snow cover in studying the winter system of the taiga.
Kolomyts, E.G , *U S Army Cold Regions Research and Engineering Laboratory*, Aug, 1980, TL 743, 15p , ADB-051 619L, For Russian original see 23-1816 23 refs
Snow cover distribution, Snow cover effect, Snowdrifts, Taiga, Seasonal variations.
The snow cover as a specific component of the natural conditions is a product of the winter processes Many facts relating to the extent and peculiarities of natural processes are revealed by the way in which the snow spreads itself, its parameter and seasonal changes Because of the variability of the data, the snow cover may be defined as large or small geosystems, ranging all the way from national and zonal complexes to natural boundary and environment The problem is to find the combinations or groupings that would consistently reflect the systematics of natural complexes The criteria for determining these types are 1) seasonal changes in the snow mass determining the character and speed of its melting and 2) the tendency and intensity of the metamorphism of the snow mass, reflecting the exchange of heat between various components of the landscape in winter For USSR territories characterized by plains and low mountains, three basic types of the snow mass have been determined These three types of snow mass are discussed and illustrated

35-981
Methods of meteorological observations (snow measuring observations).
Mel'nikova, T V , *U.S. Army Cold Regions Research and Engineering Laboratory*, Aug 1980, TL 744, 5p , ADB-051 621L, For Russian original see SIP 20522 8 refs
Snow depth, Snow density, Snow surveys, Topographic features.

35-982
Density of snow in Irkutsk.
Rozental' R G *U S Army Cold Regions Research and Engineering Laboratory*, Aug 1980, TL 745, 10p ADB-051 622L, For Russian original see SIP 8456
Snow density, Snowflakes, Grain size, Snow cover effect, Wind factors, Solar radiation.

35-983
Certain peculiarities of the distribution of water reserves in snow cover in the Moscow Region.
Nefed'eva, E A *U S Army Cold Regions Research and Engineering Laboratory*, Aug 1980, TL 746, 5p ADB-051 623L, For Russian original see 23-1858
Snow water equivalent, Snow cover distribution, USSR—Moscow Region.
Comparing the data of different model areas made it possible to determine the difference in the distribution of water reserves during the periods of maximum snow accumulation and their changes during the melting period depending on the relief layers slope exposure shading of the surface and the type vegetation The observations showed that peculiarities of the water reserve distribution and changes occurring in them as well as the physical state of the snow cover were also closely connected with meteorological conditions

35-984
Computation of the mean vertical density of snow cover.
Glazyrin, G E , et al, *U S Army Cold Regions Research and Engineering Laboratory*, Aug 1980, TL 747, 4p , ADP-051 624L, For Russian original see 23-1207 6 Refs
Denisov, IL M
Snow density, Snow water content, Snow water equivalent, Analysis (mathematics).
This article contains the system of differential equations obtained as a result of analyzing processes occurring in snow and enabling the estimation of snow density, its moisture content and water output

35-985
Port Valdez environmental studies: 1976-1978.
Colonell, J M , *American Society of Civil Engineers Environmental Engineering Division Journal*, Oct 1980, 106(EE5), p 907-917, 2 refs
Environmental protection, Oil spills, Waste disposal, Water pollution, Hot oil lines, Oceanography, Marine transportation, Marine biology, United States—Alaska—Port Valdez.

35-986
Periodically interrupted, long, narrow ice lanes on high-level windows. [Periodisch unterbrochene, lange Eisstrasschen an Hohenfenstern],
Lenggenhager, K , *Zeitschrift fur Meteorologie*, 1980, 30(4), p 245-248, In German with English summary 1 ref
Hoarfrost, Windows, Ice formation, Growth, Temperature effects, Heat loss, Orientation.

35-987
Introduction of new production testing methods for construction in conditions of the North.
Kudashov, E A , et al, *U S Army Foreign Science and Technology Center. Technical translaiton*, Aug 1980, FSTC-HT-829-79, 108p , For Russian original see 33-4251 36 refs
Tenenbaum, P S
Construction materials, Construction equipment, Concrete structures, Standards, Concretes, Measuring instruments.

35-988
Forest-floor nitrogen dynamics in a 60-year-old paper birch ecosystem in interior Alaska.
Van Cleve, K , et al, *Plant and soil*, 1980, Vol 54, p 359-381, 23 refs
White, R
Tundra, Forest ecosystems, Nutrient cycle, Forest soils, Trees (plants), Soil water.

35-989
Nutritional ecology of microtine rodents: digestibility of forage.
Batzli, G O , et al, *Mammology*, 1979, 60(4), p 740-750, 34 refs
Cole, F R
Tundra, Ecosystems, Animals, Vegetation, Ecology, Digestion (biology).

35-990
Pleistocene geology of Amchitka Island, Aleutian Islands, Alaska.
Gard, L.M , Jr , *U.S. Geological Survey Bulletin*, 1980, No 1478, 38p , 28 refs
Glacial deposits, Marine deposits, Pleistocene, Glaciation, Sea level.

35-991
Reconnaissance snow survey of the National Petroleum Reserve in Alaska, April-May 1979.
Glude, W J et al, *U S Geological Survey Water Resources Investigations*, 1980, No 80-49, 13p 3 refs
Sloan, C E
Snow surveys, Snow cover distribution, Snow density, Snow cover structure, Snowmelt, Avalanche formation, Snowfall, Precipitation (meteorology).

35-992
Deicing of airfields.
Laumann, M *U S Army Foreign Science and Technology Center Technical translation* June 29 1980 FSTC-HT-687-79, 27p , Translated from Truppenpraxis, 1979 2, p 131-139 7 refs
Aircraft landing areas, Chemical ice prevention, Road maintenance, Ice removal, Urea, Airports, Road icing, Thermal effects, Equipment.

35-993
Combatting cold.
Amendt, R , et al, *U S Army Foreign Science and Technology Center Technical translation* July 29, 1980, FSTC-HT-811-79, 10p , Translated from Truppenpraxis, 1978, No 5, p 222-225
Spohd, G
Cold weather survival, Physiological effects, Freezing, Protection.

35-994
Deglaciation and early post-glacial hydrography in northern Kainuu and Perapohjola, north-east Finland. A glacial morphological study.
Kurimo, H , *Joensuu, Finland University Publications Series B2*, 1979, No 10, 64p + 1 map, Refs p 62-64
Glacial geology, Geomorphology, Glacial hydrology, Moraines, Glacial lakes, Paleoclimatology, Ice sheets, Ice mechanics.

35-995
Isotope effects in aqueous systems II. Excess volumes in H2O D2O mixtures. The apparent molar volume of NaCl in an H2O/D2O mixture.
Dutta-Choudhury, M K , et al, *Journal of physical chemistry*, Oct 16, 1980, 84(21), p 2735-2740, 30 refs
Van Hook, W A
Isotope analysis, Heavy water, Ice physics, Volume, Hydrogen bonds, Salinity, Temperature effects.

35-996
Land reclamation in the non-chernozem zone of the RSFSR. [Melioratsiia zemel s nechernozemnoi zone RSFSR],
Aleksankin, A V , et al, Moscow, Kolos 1980, 288p , In Russian with English table of contents enclosed 100 refs
Druzhinin, N I
Peat, Swamps, Land reclamation, Drainage, Soil freezing, Frost penetration, Soil water migration, Cold weather construction, Equipment.

35-997
Using the Euler's cell particles approach in numerical modeling of ice drift. [O primenenii metoda chastits v iacheikakh dlia chislennogo modelirovaniia dreifa l'da],
Ovsienko, S N , *Leningrad Gidrometeorologicheskii nauchno-issledovatel'skii tsentr SSSR Trudy*, 1978, Vol 200, p 64-69, In Russian 2 refs
Ice mechanics, Drift, Sea ice, Mathematical models.

35-998
Some radiation effects in ice melting. [O nekotorykh radiatsionnykh effektakh pri taianii l'da],
Efroimson, V A , *Leningrad Gidrometeorologicheskii nauchno-issledovatel'skii tsentr SSSR Trudy*, 1978, Vol 200, p 70-74, In Russian 2 refs
Ice cover thickness, Ice temperature, Solar radiation, Ice melting, Mathematical medels, Ice air interface, Ice water interface, Heat transfer.

35-999
Calculating maximum receding of ice edges from the Gulf of Finland apex for the spring navigation period. [Raschet maksimal'nogo udaleniia kromok l'da ot vershiny Finskogo zaliva na vesennniuiu navigatsiiu],
Nikolaev, S G , *Leningrad Gidrometeorologicheskii nauchno-issledovatel'skii tsentr SSSR Trudy*, 1978, Vol 200, p 75-82, In Russian 4 refs
Sea ice, Ice edge, Ice navigation, Ice melting, Ice air interface, Ice water interface, Heat transfer.

35-1000
Physico-statistical method of long-range background forecasting of ice appearance on seas of the European USSR. (Fiziko-statisticheskiĭ metod fonovogo dolgosrochnogo prognoza poiavleniia l'da na moriakh Evropeĭskoĭ territorii SSSR).
Sheremetevskaia, O.I. *Leningrad Gidrometeorologicheskiĭ nauchno-issledovatel'skiĭ tsentr SSSR Trudy*, 1978. Vol 200, p 83-91. In Russian. 23 refs.
Sea ice, Ice conditions, Ice forecasting, Long range forecasting, Ice navigation.

35-1001
Evaluating variations in ice conditions of the Caspian Sea. (Otsenka izmenchivosti ledovitosti Kaspiĭskogo mor.a).
Kruglov, A.A., *Leningrad Gidrometeorologicheskiĭ nauchno-issledovatel'skiĭ tsentr SSSR. Trudy*, 1978, Vol 200, p.92-98. In Russian 8 refs
Ice conditions, Ice forecasting, Ice formation, Ice navigation, USSR—Caspian Sea.

35-1002
Satellite data on antarctic ice conditions. (O ledovitosti antarkticheskikh vod po dannym iskusstvennykh sputnikov zemli).
Dobromyslov, V.N., *Leningrad Gidrometeorologicheskiĭ nauchno-issledovatel'skiĭ tsentr SSSR Trudy*, 1978, Vol. 200, p.99-102. In Russian 8 refs
Sea ice distribution, Antarctica.
Ice conditions during the austral summer are discussed. Maximum and minimum ice cover areas for 1971-1974 are computed and the relationship between ice edge position and cyclonic circulation is briefly described.

35-1003
Extremely early ice appearance in the Gulf of Finland in the fall of 1976. (Ekstremal'no rannee poiavlenie l'da v Finskom zalive osen'iu 1976 g.).
Prokhorova, T.M., *Leningrad. Gidrometeorologicheskiĭ nauchno-issledovatel'skiĭ tsentr SSSR. Trudy*, 1989, Vol.200, p 139-143. In Russian
Ice formation, Ice conditions, Ice navigation, Sea ice, Finland, Gulf.

35-1004
Dependence of polar ice albedo on air temperature. (Zavisimost' al'bedo poliarnykh l'dov ot temperatury vozdukha).
Strokina, L.A., *Meteorologiia i gidrologiia*, July 1980, No 7, p 57-60. In Russian with English summary 13 refs
Albedo, Snow surface, Snow surface temperature, Ice surface, Air temperature, Snow air interface.
The dependence is considered between albedo of snow-ice and air temperature as well as incident angle of solar rays in the Arctic and Antarctic ice-covered areas aimed at more accurate allowance for the feedback beetween the thermal regime and polar ice area in climatic models (Auth.)

35-1005
Calculating runoff in winter and transitional seasons. (Ob opredelenii stoka v zimnii i perekhodnye periody).
Riazanov, V.S., *Meteorologiia i gidrologiia*, July 1980, No.7, p.68-77. In Russian with English summary 4 refs.
Runoff, Icebound rivers, Ice bottom surface, Subglacial drainage, Flow rate, Mathematical models.

35-1006
Impending climatic change and the fate of glaciers.
Grosval'd, M.S., et al, *Polar geography and geology*, Apr.-June 1980, 4(2), p.65-78. Translated from Akademiia nauk SSSR Izvestiia Serina geograficheskaia, No.6, 1978. Refs. p.77-78.
Kotlıakov, V.M.
Climatic changes, Ice sheets, Glacier melting, Paleoclimatology.
According to the data of glaciologists, a global warming of the climate may occur in the next 40-50 years. A change in the glaciation of mountains at temperate latitudes in Eurasia, on Arctic islands, in Greenland, and in East and West Antarctica is forecast on this basis. (Auth. mod.)

35-1007
Past and future of antarctic glaciation.
Miagkov, S.M., *Polar geography and geology*, Apr.-June 1980, 4(2), p.79-86. For Russian original see F-21842.
Paleoclimatology, Climatic changes, Antarctica.
A review of the author's own work confirms the assumption of K.K. Markov that the history of glaciation in the Antarctic has been a distinctive one and that synchronism has been absent in the glacial events of the Northern and Southern hemispheres. The results suggest that middle-latitude continental and polar glaciations must be viewed as distinctive types differing in the conditions under which they originated, in control factors and hence in their impact on climate, stability and duration. (Auth.)

35-1008
Meteorological consequences of natural or deliberate changes in the surface environment.
Vowinckel, E., et al, *Polar geography and geology*, Apr.-June 1980, 4(2), p 87-110. For French original see 30-565. 2 refs
Orvig, S.
Meteorology, Forest tundra, Forest land, Flooding, Polar regions, Subpolar regions, Albedo, Soil temperature, Heat transfer.

35-1009
Investigations, calculations and forecasts of ice conditions on rivers. (Issledovaniia raschety i prognozy ledovykh iavlenii na rekakh).
Donchenko, R.V., ed, *Leningrad. Gosudarstvennyĭ gidrologicheskiĭ institut Trudy*, 1980, Vol.270, 118p., In Russian. For individual papers see 35-1010 through 35-1020. Refs passim.
Chizhov, A.N., ed.
River ice, Lake ice, Ice conditions, Icebound rivers, Ice breakup, Ice cover thickness, Ice jams, Models, Forecasting, Ice reporting.

35-1010
Model of the river freezing process. (Model' protsessa zamerzaniia rek).
Donchenko, R.V., *Leningrad Gosudarstvennyĭ gidrologicheskiĭ institut. Trudy*, 1980, Vol.270, p 3-11. In Russian 7 refs
River ice, Ice formation, Models, Ice cover thickness, Heat transfer, Ice forecasting.

35-1011
Methods of evaluating possible changes in river freezing regimes due to diversion of part of the runoff. (Metodika otsenki vozmozhnykh izmenenii rezhima zamerzaniia rek pod vliianiem perebroski chasti stoka).
Donchenko, R.V. et al, *Leningrad. Gosudarstvennyĭ gidrologicheskiĭ institut. Trudy*, 1980, Vol.270, p.12-19. In Russian. 6 refs
Filippov, A.M.
Rivers, Ice conditions, Ice formation, Ice forecasting.

35-1012
Evaluating changes in the dates of ice breakup on rivers due to runoff diversion. (Metodika otsenki izmenenii srokov vskrytiia rek pri izʺiatii chasti stoka).
Buzin, V.A., et al, *Leningrad. Gosudarstvennyĭ gidrologicheskiĭ institut. Trudy*, 1980, Vol.270, p 20-32. In Russian 11 refs
Lazarevskaia, V.I.
Icebound rivers, Ice breakup, Ice conditions, Ice forecasting.

35-1013
Factors determining maximum water level during ice jams. (Faktory opredeliaiushchie maksimal'nyĭ zatornyĭ uroven' vody).
Buzin, V.A., *Leningrad Gosudarstvennyĭ gidrologicheskiĭ institut Trudy*, 1980, Vol 270, p 33-39. In Russian. 8 refs
Icebound rivers, Ice breakup, Water level.

35-1014
Calculating ice cover thickness on rivers and reservoirs. (O raschetakh tolshchiny ledianogo pokrova na rekakh i vodokhranilishchakh).
Chizhov, A.N., *Leningrad Gosudarstvennyĭ gidrologicheskiĭ institut. Trudy*, 1980, Vol 270, p.40-55, In Russian. 10 refs.
River ice, Lake ice, Ice cover thickness, Analysis (mathematics).

35-1015
Role of naleds in the formation of ice cover on rivers. (Rol' naledynkh iavleniĭ pri formirovanii ledianogo pokrova).
Chizhov, A.N., et al, *Leningrad Gosudarstvennyĭ gidrologicheskiĭ institut. Trudy*, 1980, Vol.270, p 56-77. In Russian 11 refs.
Borodulin, V.V.
River ice, Ice formation, Ice accretion, Subglacial flow, Ice cover strength.

35-1016
Experimental study of temporary resistivity of spring ice to tension in a nonhomogeneous field of stresses. (Eksperimentalʹnoe opredelenie vremennogo soprotivleniia vesennego l'da rastiazheniiu v neodnorodnom pole napriazheniĭ).
Kozitskiĭ, I.E., *Leningrad. Gosudarstvennyĭ gidrologicheskiĭ institut. Trudy*, 1980, Vol 270, p.78-87. In Russian. 13 refs.
River ice, Ice cover strength, Tensile properties, Seasonal variations.

35-1017
Determining ice friction coefficient in natural conditions. (Opredelenie koeffitsientov treniia l'da v naturnykh usloviiakh).
Bolotnikov, G.I., et al, *Leningrad Gosudarstvennyĭ gidrologicheskiĭ institut Trudy*, 1980, Vol 270, p 88-91, in Russian 4 refs
Filippov, A.M.
Ice breakup, Ice friction, Icebound rivers, Ice water interface, Ice air interface.

35-1018
Long range forecasting of the beginning of river ice formation in the North European USSR. (Dolgosrochnyĭ prognoz nachala ledoobrazovaniia na rekakh severa ETS).
Shanochkin, S.V., *Leningrad Gosudarstvennyĭ gidrologicheskiĭ institut Trudy*, 1980, Vol.270, p 92-99, In Russian 8 refs
River ice, Ice formation, Ice forecasting, Long range forecasting.

35-1019
Dates of ice clearing of the Danube River. (Ochishchenie oto l'da r. Dunaia).
Liapunova, I.B., *Leningrad Gosudarstvennyĭ gidrologicheskiĭ institut Trudy*, 1980, Vol 270, p 100-112, In Russian 9 refs.
River ice, Ice conditions, Ice forecasting, Ice reporting.

35-1020
Evaluating economic effectiveness of the method of calculating maximal ice-jam water levels. (K voprosu ob otsenke ekonomicheskoĭ effektivnosti metoda rascheta naivysshikh zatornykh urovneĭ vody).
Zhukova, M.A., *Leningrad Gosudarstvennyĭ gidrologicheskiĭ institut Trudy*, 1980, Vol 270, p 113-118, In Russian. 5 refs.
Ice breakup, Ice jams, Water level, Icebound rivers, Analysis (mathematics).

35-1021
Improving the quality of winter road maintenance. (Puti povysheniia kachestva zimnego soderzhaniia dorog).
Karaban, G.L., *Avtomobilʹnye dorogi*, Sep 1980, No 9, p 6-8, In Russian
Roads, Winter maintenance, Glaze, Snowdrifts, Snow removal, Chemical ice prevention, Sanding.

35-1022
Organization of road protection from snowdrifts. (Organizatsiia zashchity dorogi ot snezhnykh zanosov).
Filippov, I.V., *Avtomobilʹnye dorogi*, Sep. 1980, No.9, p 9-10, In Russian
Roads, Winter maintenance, Snowdrifts, Snow removal, Equipment, Snow retention.

35-1023
Snowplow design and construction. (Snegoochistiteli, vypuskaemye promyshlennostʹiu).
Vasilʹev, A.A., *Avtomobilʹnye dorogi*, Sep. 1980, No 9, p 12-14, In Russian
Snow removal, Equipment, Design.

35-1024
High quality and tempo of winter road construction. (Obespechitʹ vysokoe kachestvo i tempy dorozhnogo stroitelʹstva zimoĭ).
Tolpinskiĭ, B.A., *Avtomobilʹnye dorogi*, Sep 1980, No 9, p.16-17, In Russian
Roads, Earthwork, Cold weather construction.

35-1025
Seasonal fluctuations of road construction in the North. (Problema sezonnosti dorozhno-stroitelʹnykh rabot na Severe).
Malʹtsev, L.D., *Avtomobilʹnye dorogi*, Sep. 1980, No 9, p 19, 22, In Russian.
Roads, Cold weather construction, Seasonal variations.

35-1026
Loosening frozen ground by blasting. (Burovzryvnye raboty po rykhleniiu merzlykh gruntov).
Beloglazov, N.I., *Mekhanizatsiia stroitelʹstva*, Nov. 1980, No.11, p 12, In Russian.
Blasting, Excavation, Drills, Earthwork, Frozen ground.

35-1027
Hydraulic excavators with scarifier attachments. (Rykhlitel na gidravlicheskom ekskavatore).
Osadchiĭ, G.K., *Mekhanizatsiia stroitelʹstva*, Nov 1980, No.11, p 13, In Russian.
Excavation, Construction equipment, Earthwork, Frozen ground.

35-1028
Equipment for chemical soil stabilization. [O mekhanizatsii khimicheskogo zakreplenna gruntov].
Shulukov, E.I., et al. *Mekhanizatsna stroitel'stva*. Nov. 1980. No 11, p.21-22. In Russian
Voskovshchuk, G.I
Soil stabilization, Cements, Construction equipment.

35-1029
Analyzing the economic-production activities of construction firms in the West Siberian Petroleum Complex. [Osobennosti analiza proizvodstvenno-khozraistvennoi deiatel'nosti stroitel'nykh organizatsii Zapadno-Sibirskogo neftegazovogo kompleksa].
Kashlinskii, R.N., *Neftepromyslovoe stroitel'stvo*. 1980. No 9, p.21-23. In Russian
Petroleum industry, Cold weather construction, Swamps, Economic analysis, USSR—Tyumen'.

35-1030
Changes in the cost of road construction in the Tyumen' petroleum producing area. [Izmenenie stoimosti avtodorozhnogo stroitel'stva v Tiumenskom neftegazodobyvaiushchem regione].
Vasiluk, V.A., *Neftepromyslovoe stroitel'stvo*. 1980. No 10, p.2-3. In Russian
Roads, Cost analysis, Foundations, Swamps, Petroleum industry, Permafrost beneath structures, Frost heave.

35-1031
Construction of petroleum industry objects in Western Siberia. [Sooruzhenie neftepromyslovykh ob"ektov v raionakh Zapadnoi Sibiri].
[Urovskaia, A.P., et al. *Neftepromyslovoe stroitel'stvo*. 1980. No.10, p.4-5. In Russian. 2 refs.
Mikhal'chenko, O.A.
Petroleum industry, Cold weather construction, Site surveys, Foundations, Permafrost beneath structures.

35-1032
Effects of freezing conditions and contact with cryogenic media on the strength of concrete used in petroleum industry. [Vliianie uslovii zamorazhivaniia i kontakta s kriogennoi sredoi na prochnostnye kharakteristiki betona primenitel'no k ob"ektam neftegazovoi otrasli].
Andreev, V.V., *Neftepromyslovoe stroitel'stvo*. 1980. No 10, p.5-11. In Russian. 6 refs
Cold weather construction, Concretes, Frost penetration, Frost resistance, Concrete admixtures, Cements, Concrete strength, Petroleum industry.

35-1033
Construction-engineering properties of peat soils in the Komi ASSR. [Inzhenerno-stroitel'nye svoistva torfianykh gruntov Komi ASSR].
Golovkov, A.T., et al, *Neftepromyslovoe stroitel'stvo*. 1980, No.10, p.19-20, In Russian 2 refs
Mironov, V.A., Kukushkin, V.A., Belaev, A.P.
Roadbeds, Foundations, Peat, Roads, Compressive strength, Seasonal variations.

35-1034
Unfrozen water effect on thermal deformations of freezing clayey soils. [Vliianie nezamerzshei vody na teplovye deformatsn promerzaiushchikh glinistykh gruntov].
Merzlıakov, V.P., *Russia Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestna vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura*, 1980, Vol.8, p.20-24, In Russian 6 refs
Clay soils, Frost penetration, Soil freezing, Unfrozen water content, Deformation.

35-1035
Temperature field of a growing solid mass. [Temperaturnoe pole rastushchego massiva].
Zubkov, V.I., *Russia Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia Izvestna vysshikh uchebnykh zavedenii Stroitel'stvo i arkhitektura*. 1980, Vol.8, p.94-98, In Russian. 2 refs.
Concrete structures, Hydraulic structures, Dams, Concrete placing, Concrete freezing, Earth dams, Soil freezing, Thermal regime.

35-1036
Changes in vegetation of Chukotsk pastures due to reindeer grazing. [Izmenenna rastitel nosti na pastbishchakh Chukotki pod vlianiem vypasa olenei].
Polezhaev, A.N., *Ekologna*, Sep.-Oct. 1980, No 5, p.5-13, In Russian. 37 refs.
Tundra, Cryogenic soils, Arctic landscapes, Vegetation, Grazing, Lichens, Mosses, Plant ecology, Ecosystems, USSR—Chukotskiy Peninsula.

35-1037
Microclimate of moss and lichens habitats in the Hylocomium- lichen pine forests. [O mikroklimate mestoobitanii mokhovykh i lishainikovykh smuzhi sosnaika zelenomoshno-lishainikovogo].
Ipatov, V.S., et al, *Ekologna*, Sep.-Oct 1980, No 5, p.14-20, In Russian 12 refs
Tarkhova, T.N
Forest soils, Cryogenic soils, Mosses, Lichens, Plant ecology, Microclimatology.

35-1038
Photosynthetic apparatus of leaves in certain subalpine meadow plants in Central Caucasus. [Osobennosti fotosinteticheskogo apparata lista u nekotorykh rastenii subal'piiskikh lugov Tsentral'nogo Kavkaza].
Goryshina, T.K., et al, *Ekologna*, Sep.-Oct 1980, No 5, p.21-26, In Russian 19 refs
Khetsuriani, L.D
Alpine landscapes, Meadow soils, Plant physiology, Photosynthesis, USSR—Caucasus.

35-1039
Water balance and productivity of Cobresia alpine meadow in the Eastern Khangai (MPR). [Vodnyi balans i produktivnost' vysokogornogo kobrezievogo luga v vostochnom Kangae (MNR)].
Bannikova, I.A., et al, *Ekologiia*, Sep.-Oct. 1980, No 5, p.27-35, In Russian 12 refs
Izmailova, N.N., Maksimovich, S.V
Alpine landscapes, Biomass, Meadow soils, Plant ecology, Alpine tundra, Taiga.

35-1040
Phenological development of trees and shrubs in the Khamar-Daban Range. [Nekotorye osobennosti fenologicheskogo razvitna derev'ev i kustarnikov na khrebte Khamara-Dabany].
Lobanov, A.I., *Ekologiia*, Sep.-Oct. 1980, No 5, p.91-93, In Russian
Alpine landscapes, Taiga, Cryogenic soils, Plant physiology, Snow cover effect, Soil temperature.

35-1041
Proposed history of permafrost development in Labrador-Ungava.
Ives, J.D., *Geographie physique et Quaternaire*, 1979, 33(3-4), p.233-244, In English with French and German summaries Refs p.242-244
Permafrost distribution, Permafrost thickness, Glaciation, Soil temperature, Tundra, Forest ecosystems, Mapping, History, Climatic factors, Canada—Quebec.

35-1042
Permafrost studies in northern Québec.
Taylor, A., et al, *Géographie physique et Quaternaire*, 1979, 33(3-4), p.245-251, In English with French and German summaries 22 refs
Judge, A.
Permafrost dating, Permafrost heat transfer, Permafrost thickness, Active layer, Paleoclimatology, Soil temperature, Thermal conductivity, Canada—Quebec.

35-1043
Permafrost and active layer in the forest tundra south of Leaf Bay, Ungava. [Le pergélisol et la couche active dans la toundra forestière au sud de la Baie aux Feuilles, Nouveau-Québec].
Gray, J.T., et al, *Géographie physique et Quaternaire*, 1979, 33(3-4), p.253-264, In French with English and German summaries 24 refs.
Pilon, J.A., Pottevin, J
Permafrost thickness, Active layer, Tundra, Climatic factors, Forest ecosystems, Canada—Quebec—Leaf Bay.

35-1044
Permafrost spatial and temporal variations near Schefferville, Nouveau-Québec.
Nicholson, F.H., *Geographie physique et Quaternaire*, 1979, 33(3-4), p.265-277, In English with French and German summaries. 24 refs
Permafrost forecasting, Permafrost heat balance, Climatic factors, Snow accumulation, Frozen ground temperature, Air temperature, Mining, Canada—Quebec—Schefferville.

35-1045
Preliminary observations on the distribution of permafrost in the Great Whale River basin, Ungava. [Observations préliminaires sur la répartition du pergélisol dans le bassin de la Grande Rivière de la Baleine, Nouveau Quebec].
Botteron, G., et al, *Geographie physique et Quaternaire*, 1979, 33(3-4), p.291-298, In French with English and German summaries 15 refs
Gray, T., Gilbert, C
Permafrost distribution, Permafrost thickness, Drill core analysis, Discontinuous permafrost, Snow accumulation, Canada—Quebec—Great Whale River.

35-1046
Permafrost existence and distribution in the Chic-Chocs Mountains, Gaspésie, Québec.
Gray, J.T., et al, *Geographie physique et Quaternaire*, 1979, 33(3-4), p.299-316, In English with French and German summaries 15 refs
Brown, R.J.E.
Permafrost distribution, Permafrost thickness, Active layer, Snow depth, Climatic factors, Permafrost heat transfer, Thermal conductivity, Mountains, Canada—Quebec—Chic-Chocs Mountains.

35-1047
Comparis n of thermal and radar active layer measurement techniques in the Leaf Bay area, Nouveau-Québec.
Pilon, J.A., et al, *Géographie physique et Quaternaire*, 1979, 33(3-4), p.317-326, In English with French and German summaries 12 refs.
Annan, A.P., Davis, J.L., Gray, J.T.
Active layer, Radar echoes, Thermal analysis, Permafrost heat transfer, Measuring instruments, Profiles, Canada—Quebec—Leaf Bay.

35-1048
Geophysical study of a palsa field at Poste-de-la-Baleine, Ungava. [Etude géophysique d'un champ de palses à Poste-de-la-Baleine, Nouveau-Québec].
Seguin, M.K., et al, *Geographie physique et Quaternaire*, 1979, 33(3-4), p.327-337, In French with English and German summaries. Refs. p.335-337
Crépault, J.
Frost mounds, Geophysical surveys, Geomorphology, Stratigraphy, Ice lenses, Active layer, Permafrost thermal properties, Peat, Clay soils, Canada—Quebec—Poste-de-la-Baleine.

35-1049
Cryogenic mineral mounds of the Leaf River lowlands, Ungava. [Les buttes minérales cryogènes dans les basses terres de la rivière aux Feuilles, Nouveau-Québec].
Payette, S., et al, *Géographie physique et Quaternaire*, 1979, 33(3-4), p.339-358
Seguin, M.K
Frost mounds, Cryogenic soils, Permafrost thickness, Radar echoes, Active layer, Landforms, Thermokarst, Periglacial processes, Canada—Quebec—Leaf River.

35-1050
Preliminary results of a study on active layer hydrology in the discontinuous zone at Schefferville, Nouveau-Québec.
Wright, R.K., *Géographie physique et Quaternaire*, 1979, 33(3-4), p.359-368, In English with French and German summaries. 18 refs
Active layer, Permafrost hydrology, Tundra, Soil water migration, Lichens, Soil temperature, Climatic factors, Discontinuous permafrost, Canada--Quebec—Schefferville.

35-1051
Mining of frozen iron ore in northern Québec and Labrador.
Garg, O.P., *Geographie physique et Quaternaire*, 1979, 33(3-4), p.369-376, In English with French and German summaries. 16 refs.
Frozen rocks, Mining, Permafrost thermal properties, Permafrost forecasting, Drilling, Geophysical surveys, Blasting, Seismic surveys.

35-1052
Horizontal coherency of the motion of summer Arctic sea ice.
Colony, R., et al, *Journal of physical oceanography*, Aug. 1980, 10(8), p.1281-1289, 14 refs.
Thorndike, A.S.
Ice floes, Ice mechanics, Wind velocity, Cohesion, Sea ice distribution, Pack ice, Wind factors, Models.

35-1053
Effect of bubbles released from a melting ice wall on the melt-driven convection in salt water.
Josberger, E G. *Journal of physical oceanography*. Mar 1980, 10(3), p.474-477. 5 refs.
Ice melting, Bubbles, Glacier ice, Ice water interface, Convection, Buoyancy, Salt water, Water temperature, Salinity.
The buoyancy created by the release of air bubbles from melting glacial ice walls results from both the upward drag of the bubbles and the density defect caused by the steady-state distribution of bubbles in the water. Calculations using typical antarctic ice bubble concentrations and Southern Ocean temperatures and salinities show that the bubble buoyancy is comparable to the dilution for vertical ice length scales greater than 100 m. A comparison of laboratory experiments using 0.6 m long sheets of both bubbly and bubble-free ice shows two additional bubble effects. First, the bubbly ice melts in an irregular fashion that produces indentations in the ice which measure 20 mm long, 25 mm wide and 5 mm deep while the bubble-free ice melts smoothly. Second, the ice-water interface salinity in the bubbly case is higher than in the bubble-free case. Finally, the observed melt rates lie within 10% of the observed melt rates from the bubble free experiments. (Auth.)

35-1054
Glacio-geomorphological observations in Cape Omega on the Prince Olav Coast, East Antarctica.
Moriwaki, K. *Antarctic record*. Sep 1980, No 70, p 1-14, 19 refs. In English with Japanese summary.
Patterned ground, Moraines, Ice sheets, Rocks, Frost shattering, Meltwater, Antarctica—Omega, Cape.
A reconnaissance geomorphological survey of Cape Omega was made in January 1977. Cape Omega has glaciated features as do other ice-free areas in the vicinity of Showa Station. The past ice sheet covered Cape Omega completely. Abundant glacial striae are preserved on the bedrock, and they are classified into two groups, i.e. SE-NW trending ones and ESE-WNW trending ones. The former group indicates the older direction of ice flow, and the latter the younger. The moraine in the marginal part of the ice sheet close to the rocks is the biggest one among those in the vicinity of Showa Station. Measurement of earth temperature in sorted polygons was made for 2 days. Measured minimum temperature did not fall below the freezing point. It may be ascribed to some extent to the fact that the period of measuring was an abnormally warm period near Showa Station. In the summer season, meltwater streams occur in the marginal zone of the ice sheet. Several meltwater streams develop in a zone 2.5 km in width in the Cape Omega area. (Auth. mod.)

35-1055
Activities of Japanese Party in McMurdo Sound area during the 1978-79 field season.
Nishio, F., et al. *Antarctic record*. Sep. 1980, No 70, p 137-148. In Japanese with English summary. 3 refs.
Shiraishi, K., Funaki, M.
Glacier surveys, Glaciology, Antarctica—Allan Hills.
Three Japanese scientists visited McMurdo Station and Victoria Land from Oct 1978 to Jan 1979 to carry out the following research projects: search for antarctic meteorites; glaciological survey in the Allan Hills bare ice field, a geological survey at the same location, and a geological survey in the Dry Valley area. A number of samples of paleomagnetic rocks were taken as well.

35-1056
Field operation of explosion seismic experiment in Antarctica.
Ikami, A., et al. *Antarctic record*. Sep 1980, No.70, p.158-182, In Japanese with English summary. 4 refs.
Ichinose, Y., Harada, M., Kaminuma, K.
Glaciology, Seismic prospecting, Ice sheets, Antarctica—Prince Olav Coast.
The summer field party of the 20th Japanese Antarctic Research Expedition carried out seismic experiments at Soya Coast. The purpose was to investigate crustal structure and to establish a technique of seismic prospecting in Antarctica, such as the laying of profiles and instrumentation, development of ice drills, dynamite for use at low temperatures, etc. The observation was conducted by 8 persons for a period of 19 days. The profile is about 70 km in length eastward from the Ongul Strait near Showa Station. Ten observation points were set up every five kilometers along the profile. Shot points are located at both ends of the profile. Dynamite weighing 1000 kg was exploded at a depth of 110 m in the Ongul Strait. On the other side of the profile a total of 560 kg dynamite was installed from a depth of 17 m to the bottom (62.8 m). The experiment was successful. (Auth. mod.)

35-1057
Drilling through shelf ice near Novolazarevskaya Station.
Korotkevich, E.S., et al. Washington, National Science Foundation, 1979, 11p., TT79-59003/1. Unpublished translation. For Russian original, see 10F-20724 or 33-847. 5 refs.
Savatiugin, L.M., Morev, V.A.
Ice temperature, Ice cores, Drilling, Ice shelves, Antarctica—Lazarev Ice Shelf.
Two cores were drilled through the Lazarev ice shelf and ice temperature, texture and other parameters studied. The ice shelf at these two points was 370 and 374 m thick, respectively, and the ice was determined to be of continental origin, an outgrowth of the glacier and not a result of bottom freezing.

35-1058
Oceanographic data report d'Iberville Fiord, Ellesmere Island, N.W.T. March to April 1974.
Frozen Sea Research Group, Pacific Marine Science report, No.75-1, Victoria, B.C. Institute of Ocean Sciences, Patricia Bay. Aug. 1974, 139p., 10 refs.
Sea ice distribution, Oceanographic surveys, Water temperature, Salinity, Density (mass/volume), Data processing, Conductivity, Chemical analysis, Optical properties.

35-1059
Study of oceanic boundary-layer characteristics including inertial oscillation at three drifting stations in the Arctic Ocean.
McPhee, M.G. *Journal of physical oceanography*. June 1980, 10(6), MP 1369, p 870-884, 22 refs.
Boundary layer, Drift, Pack ice, Ocean currents, Oscillations, Wind factors, Drift stations.

35-1060
Melting of ice in cold stratified water.
Huppert, H.E., et al. *Journal of physical oceanography*. June 1980, 10(6), p.953-960, 9 refs.
Josberger, E.G.
Ice melting, Icebergs, Calving, Freezing points, Salt water, Meltwater, Experimentation, Density (mass/volume), Temperature effects, Layers, Salinity.
Each year approximately 5000 icebergs are calved into the Antarctic Ocean. These icebergs initially have horizontal sizes of typically 1 km and their initial depth is approx. 250 m, the mean thickness of the glacier or ice shelf at the point of calving. Approximately 25,000 Arctic icebergs are calved each year with a typical depth of 50 m. The melting of icebergs in cold water vertically stratified with salt is considered. The study extends previous investigations of ice melting in cold water at uniform salinity and in warm water with a salinity gradient. We find, in agreement with the results of the latter study, that the meltwater spreads out in a series of horizontal layers. This motion tends to convert the initially smooth salinity distribution into one with much larger gradients in the interfaces between the layers. The thickness of the layers is well represented by an equation.

35-1061
Review of technology for Arctic offshore oil and gas recovery, Vol.1.
Sackinger, W.M., Washington, D.C., Aug. 1980, 95p., Second edition. U.S. Dept. of Energy Division of Fossil Fuel Extraction. Contract No. DE-AC01-80ET14317. 118 refs.
Natural resources, Offshore drilling, Sea ice distribution, Ice loads, Icing, Ocean environments, Permafrost beneath structures, Subsea permafrost, Water waves, Wind factors, Oil recovery.

35-1062
Report of the Workshop on Arctic Oil and Gas Recovery held at Sandia National laboratories, Albuquerque, New Mexico, 30 June-2 July 1980.
Sackinger, W.M., Washington, D.C., Sep 1980, 38p., Submitted as final report for contract No. DE-AC01-80ET14317. U.S. Dept. of Energy, Office of Oil.
Natural resources, Sea ice distribution, Oil spills, Water pollution, Ocean environments, Ice scoring, Marine geology, Offshore structures, Ice loads, Icing, Natural gas, Earthquakes, Oil recovery.

35-1063
Transition layer on the surface on ice.
Beaglehole, D., et al. *Surface science*. 1980, Vol.96, p.357-363, 16 refs.
Nason, D.
Ice crystal optics, Ice surface, Ice crystal structure, Basal sliding, Temperature effects, Anisotropy.

35-1064
Glaciological studies on the perennial snow patches in Tsurugisawa; Part 2 (Ablation and climate).
Moribayashi, S., et al. *Seppyo*. Sep. 1980, 42(3), p 1-28, In Japanese with English summary. 17 refs.
Higuchi, K.
Cirque glaciers, Glacier ablation, Glaciology, Vapor pressure, Snow cover, Seasonal variations, Meteorological data.

35-1065
On the formation of snow crystals in a vertical wind tunnel.
Furukawa, Y., et al. *Seppyo*. Sep. 1980, 42(3), p 29-32, In Japanese. 5 refs.
Endo, T., Mizuno, Y., Naruse, R., Takahashi, T.
Wind tunnels, Snow crystal structure, Cloud droplets, Wind velocity, Temperature effects.

35-1066
Research on snow and ice (Review of Geophysics and space physics, Vol.17, No.6, September 1979).
Nishimura, H., et al. *Seppyo*. Sep 1980, 42(3), p.33-69, In Japanese and English. Refs. p.46-69.
Kasunoki, K.
Snow surveys, Ice surveys, Glaciology, Bibliographies, Research projects.

35-1067
Outline of glaciological research in the USSR.
Kusunoki, K., *Seppyo*. Sep. 1980, 42(3), p 71-73, In Japanese and English.
Glaciology, Snow surveys, Ice surveys, Research projects.

35-1068
Tunnel problems put on ice. *Engineering news-record*. Nov. 27, 1980, 205(22), p 32-33.
Tunneling (excavation), Frozen ground settling, Soil freezing, Settlement (structural).

35-1069
Formation mechanism of concentric dislocation loops in ice single crystals grown from the melt.
Oguro, M., et al. *Journal of crystal growth*. 1981, 51(1), p 71-80, 9 refs.
Higashi, A.
Ice crystal growth, Ice crystal structure, X ray diffraction, Doped ice, Ice crystal nuclei, Meltwater.

35-1070
Simple method for predicting cap and base rock heat losses in thermal reservoir simulators.
Vinsome, P.K.W., et al. *Journal of Canadian petroleum technology*. July-Sep 1980, 19(3), p 87-90, 4 refs.
Westerveld, J.
Reservoirs, Heat loss, Temperature effects, Forecasting.

35-1071
Research of periglacial morphology in Finland. (Periglasiaalisen morfologian tutkimus Suomessa).
Aartolahti, T. *Terra*. 1980, 92(2), p.74-87. In Finnish with English summary. Refs. p.84-87.
Periglacial processes, Geomorphology, Geocryology, Freeze thaw cycles, Frost heave, Frost mounds, Hummocks, Solifluction.

35-1072
Coast Guard's red fleet.
Garrett, J.M., *U.S. Naval Institute Proceedings*. Dec 1980, 106(12), p 101-103.
Icebreakers.
The Coast Guard icebreakers are identified and administrative procedures dealing with the management of these vessels are discussed, including their operational control, personnel assignments, and aviation capabilities. Their substantial current role of supporting U.S. scientific efforts in Antarctica is emphasized. Their future role is considered in light of present and anticipated U.S. interests in high latitudes.

35-1073
***Nanorchestes antarcticus* Strandtmann (Prostigmata) from antarctic ice.**
Block, W., *Acarologia*. May 1980. 21(2), p 173-176. In English with French summary. 15 refs.
Cryobiology, Microbiology.
Nanorchestes antarcticus Strandtmann 1967 (Prostigmata, Pachygnathidae) is reported in ice samples from the MacLeod Glacier on Signy Island. Its occurrence in glacier ice is discussed in relation to features of its biology. (Auth.)

35-1074
January and July performance of the OSU two-level atmospheric general circulation model.
Schlesinger, M.E., et al. *Journal of the atmospheric sciences*. Sep. 1980, 37(9), p.1914-1943, 16 refs.
Gates, W.L.
Atmospheric circulation, Sea ice, Climate, Models.
A modified version of the two-level atmospheric general circulation model has been developed and used in the simulation of January and July global climates. The overall physical and numerical formulation of this Oregon State University (OSU) model is the same as that described previously by Gates and Schlesinger, but in the new version water vapor at the upper level has been a prognostic variable, the parameterizations of cumulus convection, large-scale condensation, and evaporation, clouds and radiative transfer have been changed, the surface snow mass and ground temperature have been made prognostic variables, and the treatment of the surface boundary layer has been revised. Modifications have also been made in the numerical solution procedure (which have increased the model speed by nearly a factor of 2), and in the prescribed distributions of topography, sea surface temperature and sea ice. The surface albedo is now a function of the prescribed surface type and of the predicted surface snow cover. The model incorporates antarctic data into the computations and numerical solutions. (Auth. mod.)

35-1075
Pleistocene bimodal response of antarctic ice.
Drewry, D.J., *Nature*, Sep 18, 1980, 287(5779), p.214-216, 40 refs
Pleistocene, Ice sheets, Paleoclimatology, Glacial geology.
Extent and volume of the Antarctic ice sheet have important roles in modulating global atmospheric and oceanographic processes and have significant implications for world sea levels. The history of ice sheet variations in Antarctica has mainly been founded on studies in the ice free (Dry) valleys of southern Victoria Land. A detailed glacial chronology is based on the premise that Taylor Glacier and neighbouring Wright Upper Glacier are outlets of the East Antarctic ice sheet and that the extent of Taylor Glacier reflects the height of this ice sheet, and, since it terminates on land, records of its former positions provide one of the few indications of former heights of the ice sheet. That the East Antarctic ice sheet reached its maximum dimensions during each of the last four world wide interglacials is an important conclusion of this work. New geophysical data from Taylor Glacier and the adjacent ice sheet in Victoria Land are presented here which challenge these suppositions. (Auth mod)

35-1076
Giant solar flares in antarctic ice.
Strothers, R., *Nature*, Sep 25, 1980, 287(5780), p 365, 9 refs.
Ice cores, Drill core analysis, Paleoclimatology.
An alternative explanation for the concentration NO3 in antarctic ice cores dating from 1150 to the present is given. The ionization process as stated by Rood et al (F-22633) is regarded as strained because of the difficulty in attaining the necessary energy and the dates do not match well with historical supernovae. The alternative suggestion is that unusually powerful solar flares could have caused the necessary ionizing radiation and the dating correlates well with sunspot and auroral activity.

35-1077
Mining perennially frozen placers and ore deposits. (Razrabotka vechnomerzlykh rudnykh i rossypnykh mestorozhdenii poleznykh iskopaemykh).
Emel'ianov, V.I., ed, Magadan. Vsesoiuznyi nauchno-issledovatel'skii institut zolota i redkikh metallov. Sbornik nauchnykh trudov, No 38, Magadan, 1978, 136p., In Russian. For selected papers see 35-1078 through 35-1084. Refs passim.
DLC TN155 R36
Placer mining, Metals, Frozen fines, Hydraulic jets, Excavation, Blasting, Explosives, Artificial thawing, Equipment, Permafrost.

35-1078
Thirtieth anniversary of the All-Union Scientific Research Institute of Gold and Rare Metals. (Vsesoiuznomu nauchno-issledovatel'skomu institutu zolota i *redkikh metallov—30 let*).
Emel'ianov, V.I., Razrabotka vechnomerzlykh rudnykh i rossypnykh mestorozhdenii poleznykh iskopaemykh (Mining perennially frozen placers and ore deposits) edited by V.I. Emel'ianov, Magadan, 1978, p.3-8, In Russian
DLC TN155 R36
Mining, Metals, Permafrost, Research projects, Geocryology, Engineering geology, Excavation.

35-1079
Grouping of mining blocks in mathematical modeling of placers. (Aggregirovanie ekspluatatsionnykh blokov pri formirovanii matematicheskoi modeli priiska).
Denisov, A.P., et al, Razrabotka vechnomerzlykh rudnykh i rossypnykh mestorozhdenii poleznykh iskopaemykh (Mining perennially frozen placers and ore deposits) edited by V.I. Emel'ianov, Magadan, 1978, p.9-19, In russian. 3 refs.
Shakhbazian, Ts.A.
DLC TN155.R36
Placer mining, Frozen fines, Peat, Sands, Permafrost, Artifical thawing, Mathematical models, Computer applications.

35-1080
New hydraulic excavator for mining assemblies of the "Severovostokzoloto" Association. (Novyi gidromonitor dlia raboty na gidravlicheskikh ustanovkakh ob"edinenna "Severovostokzolot").
Grinevich, V.V., et al, Razrabotka vechnomerzlykh rudnykh i rossypnykh mestorozhdenii poleznykh iskopaemykh (Mining perennially frozen placers and ore deposits) edited by V.I. Emel'ianov, Magadan, 1978, p.34-37, In Russian
Burtsev, G.G.
DLC TN155.R36
Mining, Quarries, Frozen fines, Excavation, Hydraulic jets.

35-1081
Underground mining of placers using 2PNB-2 excavators and drag-link conveyers. (Tekhnologiia razrabotki rossypei podzemnym sposobom s primeneniem pogruzochnoi mashiny 2PNB-2 i skrebkovykh konveierov).
Mamaev, IU.A., et al, Razrabotka vechnomerzlykh rudnykh i rossypnykh mestorozhdenii poleznykh iskopaemykh (Mining perennially frozen placers and ore deposits) edited by V.I. Emel'ianov, Magadan, 1978, p.38-48, In Russian. 2 refs.
DLC TN155 R36
Placer mining, Excavation, Equipment, Permafrost.

35-1082
Studying the technology of erecting artificial ice pillars and their bearing strength for underground mining of perennially frozen placers. (Issledovanie tekhnologii vozvedenna iskusstvennykh ledianykh tselikov i ikh nesushchei sposobnosti pri podzemnoi razrabotke vechnomerzlykh rossypei).
Emel'ianov, V.I., et al, Razrabotka vechnomerzlykh rudnykh i rossypnykh mestorozhdenii poleznykh iskopaemykh (Mining perennially frozen placers and ore deposits) edited by V.I. Emel'ianov, Magadan, 1978, p.49-73, In Russian. 6 refs.
DLC TN155.R36
Placer mining, Excavation, Supports, Artificial ice, Ice (construction material).

35-1083
Improving stability of physico-chemical and detonation properties of simplest explosives. (Povyshenie stabil'nosti fiziko-khimicheskikh i vzryvnykh svoistv prosteishikh vzryvchatykh veshchestv).
Egupov, A.A., et al, Razrabotka vechnomerzlykh rudnykh i rossypnykh mestorozhdenii poleznykh iskopaemykh (Mining perennially frozen placers and ore deposits) edited by V.I. Emel'ianov, Magadan, 1978, p.84-97, In Russian. 7 refs
Tishinkov, P.A., Kirkin, V.N., Jurochkina, N.I.
DLC TN155 R36
Mining, Blasting, Explosives, Permafrost.

35-1084
Computer analysis of moisture content variations in rocks dried by open drainage. (Metodika rascheta na EVM izmenenna vlazhnosti porod pri osushenii otkrytym drenazhem).
Rapoport, IU.O., Razrabotka vechnomerzlykh rudnykh i rossypnykh mestorozhdenii poleznykh iskopaemykh (Mining perennially frozen placers and ore deposits) edited by V.I. Emel'ianov, Magadan, 1978, p.119-135, In Russian. 8 refs
DLC TN155.R36
Placer mining, Drainage, Artificial thawing, Permafrost, Mathematical models.

35-1085
Increasing steel structure stability at low temperatures. (Problema povyshenna nadezhnosti stal'nykh konstruktsii podverzhennykh vozdeistviiu nizkikh temperatur).
Sil'vestrov, A.V., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura*, 1980, No.7, p.3-8, In Russian
Steel structures, Steels, Frost resistance, Brittleness, Welding, Tests, Design.

35-1086
Problems in the improvement of wooden structures. (Aktual'nye voprosy sovershenstvovaniia derevianykh konstruktsii).
Dmitriev, P.A., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura*, 1980, No.7, p.15-12, In Russian. 15 refs
Wooden structures, Prefabrication, Thermal insulation, Snow loads, Ice loads.

35-1087
Mineral raw materials from Siberia and the North used in construction. (Stroitel'nye materialy iz mineral'nogo syr'ia Sibiri i Severa).
Knigina, G.I., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura*, 1980, No.7, p.79-83, In Russian. 9 refs
Construction materials, Wastes, Concrete admixtures, Cement admixtures, Masonry, Frost resistance.

35-1088
Development and prospects of using electically heated concrete mixtures. (Razvitie i perspektivy betonirovanna s elektrorazogrevom smesi).
Arben'ev, A.S., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura*, 1980, No.7, p.87-91, In Russian. 6 refs
Winter concreting, Concrete aggregates, Cements, Electric heating.

35-1089
Increasing the effectiveness of dredging equipment when building hydraulically filled structures under severe climatic conditions. (Povyshenie effektivnosti gidromekhanizatsii pri vozvedenii namyvnykh gidrotekhnicheskikh sooruzhenii v surovykh klimaticheskikh usloviiakh).
Popov, IU.A., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura*, 1980, No.7, p.98-104, In Russian. 21 refs
Hydraulic structures, Earth dams, Hydraulic fill, Ground ice, Dredging, Construction equipment, Cold weather construction.

35-1090
Tree bark in road pavement construction. (Drevesnaia kora v konstruktsiiakh dorozhnykh odezhd).
Lukina, V.A., et al, *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura*, 1980, No.7, p.124-127, In Russian. 6 refs
Gur'ev, T.A., Kuhzhnikov, A.M.
Roads, Pavements, Construction materials, Wastes, Wood, Thermal insulation, Frost heave.

35-1091
Formation of forest strips and their effect on snow distribution. (Formirovanie lesnykh polos i ikh vliianie na raspredelenie snega).
Savin, E.N., ed, Krasnoyarsk, 1978, 96p., In Russian
For individual papers see 35-1092 through 35-1100
Refs. passim
DLC SD390.7.S56F67
Protective vegetation, Steppes, Forest strips, Vegetation patterns, Biomass, Litter, Roots, Forest soils, Snow cover distribution, Snow retention, Snow water equivalent.

35-1092
Field protection effectiveness of forest strip systems in the steppes of northern Kazakhstan. (Effektivnost' sistemy polezashchitnykh lesnykh polos v stepnykh raionakh Severnogo Kazakhstana).
Tarasenko, A.N., et al, Formirovanie lesnykh polos i ikh vliianie na raspredelenie snega (Formation of forest strips and their effect on snow distribution) edited by E.N. Savin, Krasnoyarsk, 1978, p.4-11, In Russian. 4 refs
Kostyleva, T.A.
DLC SD390.7.S56F67
Steppes, Soil water, Snow retention, Protective vegetation, Forest strips, Snow cover distribution.

35-1093
Effect of young forest strips on snow cover distribution in the Shirinskaya steppe. (Vliianie molodykh lesnykh polos na raspredelenie snega v Shirinskoi stepi).
Romanenko, V.R., et al, Formirovanie lesnykh polos i ikh vliianie na raspredelenie snega (Formation of forest strips and their effect on snow distribution) edited by E.N. Savin, Krasnoyarsk, 1978, p.11-23, In Russian. 11 refs
Savin, E.N.
DLC SD390.7.S56F67
Snow retention, Forest strips, Snow cover distribution, Steppes.

35-1094
Root system development of woody plants in soils unfavorable for forestry. (Formirovanie kornevykh sistem drevesnykh porod na pochvakh ponizhennoi lesoprigodnosti).
Lamin, L.A., Formirovanie lesnykh polos in ikh vliianie na raspredelenie snega (Formation of forest strips and their effect on snow distribution) edited by E.N. Savin, Krasnoyarsk, 1978, p.23-33, In Russian. 4 refs
DLC SD390.7.S56F67
Cryogenic soils, Saline soils, Forestry, Vegetation patterns, Plant physiology, Roots.

35-1095
Above-ground biomass and growth of the Siberian larch in the protective forest strips of the Shirinskaya steppe. (Rost i nadzemnaia biomassa listvennitsy sibirskoĭ v polezashchitnykh lesnykh polosakh Shirinskoĭ stepi).
Popov, V P , Formirovanie lesnykh polos i ikh vliianie na raspredelenie snega (Formation of forest strips and their effect on snow distribution) edited by E N Savin, Krasnoyarsk, 1978, p.33-44, In Russian. 3 refs
DLC SD390 7 S56F67
Protective vegetation, Forest strips, Vegetation patterns, Biomass, Steppes.

35-1096
Growth of trees in protective forest strips of Siberian dry steppes. (Rost derev'ev v polezashchitnykh lesnykh polosakh sukhostepnoĭ zony Sibiri).
Popova, O S., Formirovanie lesnykh polos i ikh vliianie na raspredelenie snega (Formation of forest strips and their effect on snow distribution) edited by E N. Savin, Krasnoyarsk, 1978, p.44-47, In Russian. 9 refs.
DLC SD390.7.S56F67
Snow retention, Protective vegetation, Vegetation patterns, Forest strips, Steppes.

35-1097
Biomass structure in narrow forest strips of West Siberian dry steppes. (Struktura biomassy v uzkikh lesnykh polosakh sukhoĭ stepi Zapadnoĭ Sibiri).
Dolgilevich, M.I., et al, Formirovanie lesnykh polos i ikh vliianie na raspredelenie snega (Formation of forest strips and their effect on snow distribution) edited by E.N. Savin, Krasnoyarsk, 1978, p 57-68, In Russian. 5 refs.
Popov, V.P., Popova, O.S.
DLC SD390.7.S56F67
Steppes, Snow retention, Protective vegetation, Forest strips, Biomass, Snow cover distribution.

35-1098
Development of weeds in Siberian larch forest strips in relation to using different soil cultivation equipments. (Razvitie travianistoĭ rastitel'nosti v lesnykh polosakh iz listvennitsy sibirskoĭ pri provedenii ukhodov za pochvoĭ razlichnymi orudiiami).
Prokudina, N A , et al, Formirovanie lesnykh polos i ikh vliianie na raspredelenie snega (Formation of forest strips and their effect on snow distribution) edited by E.N. Savin, Krasnoyarsk, 1978, p.68-75, In Russian. 5 refs.
DLC SD390 7 S56F67
Forest strips, Cryogenic soils, Soil erosion, Snow retention, Snow cover distribution.

35-1099
Effect of young forest strips on snow cover distribution over the south of Krasnoyarsk region. (Vliianie molodykh lesnykh polos na snegoraspredelenie v iuzhnykh raĭonakh Krasnoiarskogo kraia).
Polezhaeva, Z.N., et al, Formirovanie lesnykh polos i ikh vliianie na raspredelenie snega (Formation of forest strips and their effect on snow distribution) edited by E N Savin, Krasnoyarsk, 1978, p.76-83, In Russian. 4 refs.
Molokov, V.A.
DLC SD390 7.S56F67
Protective vegetation, Snow retention, Forest strips, Vegetation patterns, Snow cover distribution.

35-1100
Forest strip vulnerability to snow breakage. (Povrezhdaemost' lesnykh polos snegolomom).
Tarasenko, A N , et al, Formirovanie lesnykh polos i ikh vliianie na raspredelenie snega (Formation of forest strips and their effect on snow distribution) edited by E.N. Savin, Krasnoyarsk, 1978, p 83-90, In Russian. 8 refs
Savin, E.N.
DLC SD390.7.S56F67
Protective vegetation, Forest strips, Snow accumulation, Snow cover distribution, Damage.

35-1101
Low-velocity impact craters in ice and ice-saturated sand with implications for Martian crater count ages.
Croft, S.K , et al, *Journal of geophysical research*, Dec. 30, 1979, 84(B14), p.8023-8032, 51 refs.
Kieffer, S.W.
Sands, Frozen fines, Ice strength, Soil strength, Frozen rocks, Mars (planet), Volcanoes.

35-1102
Volcano-ice interactions on Mars.
Allen, C.C., *Journal of geophysical research*, Dec 30, 1979, 84(B24), p 8048-8059, 29 refs.
Ice solid interface, Volcanoes, Mars (planet), Subglacial observations, Soil erosion.

35-1103
Thermodynamical study of the Martian permafrost.
Coradini, M , et al, *Journal of geophysical research*, Dec 30, 1979, 84(B24), p.8115-8130, 17 refs
Flamini, E
Permafrost thermal properties, Thermodynamics, Mars (planet), Seasonal freeze thaw, Active layer.

35-1104
Mars south polar spring and summer temperatures: a residual CO2 frost.
Kieffer, H H , *Journal of geophysical research*, Dec 30, 1979, 84(B24), p.8263-8288, 22 refs
Frost, Carbon dioxide, Mars (planet), Temperature variations, Seasonal variations, Ice sheets, Albedo, Polar regions.

35-1105
Permafrost beneath the Beaufort Sea: near Prudhoe Bay, Alaska.
Sellmann, P V , et al, *Journal of energy resources technology*, Mar 1980, 102(1), MP 1346, p.35-48, For the same paper from another source see 33-3864 34 refs
Chamberlain, E J
Subsea permafrost, Offshore drilling, Probes, Penetration tests, Bottom sediment, Ocean bottom.

35-1106
Design of hydrostatically supported sand islands for Arctic drilling.
Dowse, B E W , *Journal of energy resources technology*, Mar 1980, 102(1), p.49-54, 14 refs
Offshore drilling, Artificial islands, Static stability, Hydrodynamics, Ice pressure, Offshore structures, Sand, Sea ice distribution, Design.

35-1107
Measurements of sea-ice stresses near grounded obstacles.
Sackinger, W.M., et al, *Journal of energy resources technology*, Sep 1980, 102(3), p.144-147, 16 refs
Nelson, R.D.
Sea ice, Offshore structures, Ice pressure, Stresses, Artificial islands, Compressive properties, Pressure ridges, Tensile properties, Ice cracks, Ice strength.

35-1108
Breaking ice with gravity waves.
Bates, H F , et al, *Journal of energy resources technology*, Sep 1980, 102(3), p 148-153, 13 refs
Shapiro, L H.
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More than 3000 concentrations data obtained by the analysis of 12 trace metals in 250 snow samples collected in various locations in Antarctica have been processed through principal components factor analysis The interpretation of the groups of covariant metals so obtained allows estimation of the relative contributions of the various aerosol sources to the trace metals content of antarctic aerosols Al, Fe, and Mn are shown to be crustal derived in all locations The origin of Na, Mg, K, and Ca depends on the distance from the sea the influence of the marine source decreases from the sea coast to a distance of about 500 km, where the influence of the crustal source becomes predominant it increases then toward the most central areas of the Antarctic ice cap The anomalously enriched elements Pb, Ld, Cn Zn and Ag are clearly shown to be derived from one or possibly several sources independent of both the oceanic and the crustal sources (Auth)

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Mosses, Peat, Permafrost, Antarctica– Argentine Islands, Signy Island.
Three Antarctic moss banks were studied in detail, two dominated by *Polytrichum alpestre* Hoppe and one by *Chorisodontium aciphyllum* (Hook. f. et Wils.) Broth. The rate of upward growth of the moss banks, 0.9-1.3 mm yr, is approximately half

the annual shoot growth The amount of decomposition which has occurred at different depths of the peat in these banks was calculated from measurements of bulk density and compression The decomposition rate appears to be <1% yr Peat 20-30 cm below the surface is permanently frozen, and about half the original material has decomposed by the time it becomes incorporated into this permafrost Evidence is presented that a slow decomposition rate is an intrinsic characteristic of *Polytrichum alpestre* The rate of peat accumulation, 89-158 g/sq m/yr, is about half the rate of production, 162-350 g/sq m yr The former is similar to accumulation rates of peat elsewhere in the world (Auth)

35-1171
Fracture strength of polycrystalline ice containing KCl.
Ogawa, K., et al, *Low temperature science (Teion kagaku). Series A Physical sciences* 1978, Vol 36, p.1-9, 13 refs.
Kuroiwa, D
Ice crystal size, Ice crystal structure, Fracturing, Ice strength, Compressive properties, Impurities, Temperature effects, Ice composition, Ice crystal replicas.

35-1172
Theoretical studies on air flow within snow. 1. Equations of motion.
Yoshida, Z., *Low temperature science (Teion kagaku). Series A Physical sciences,* 1978, Vol.36, p.11-27, 6 refs., In Japanese with English summary.
Snow permeability, Snow physics, Air flow, Turbulent flow, Analysis (mathematics).

35-1173
Theoretical studies on air flow within snow. 2. Boundary conditions at a porous surface when fluid flows over it in the form of laminar flow.
Yoshida, Z., *Low temperature science (Teion kagaku). Series A Physical sciences,* 1978, Vol 36, p.29-40, 5 refs., In Japanese with English summary
Snow permeability, Snow physics, Air flow, Laminar flow, Porosity, Water flow, Boundary value problems.

35-1174
Theoretical studies on air flow within snow. 3. Flow of fluid in the surface transition layer.
Yoshida, Z., *Low temperature science (Teion kagaku). Series A Physical sciences,* 1978, Vol 36, p.41-54, 6 refs., In Japanese with English summary.
Snow permeability, Snow physics, Air flow, Fluid flow, Porosity, Boundary value problems, Snow cover structure, Analysis (mathematics).

35-1175
Measurements of restitution coefficients of ice.
Araoka, K., et al, *Low temperature science (Teion kagaku) Series A Physical sciences,* 1978, Vol 36, p 55-65, 3 refs., In Japanese with English summary.
Maeno, N
Ice surface, Surface roughness, Spheres, Velocity, Ice mechanics, Microstructure, Particles, Ice cracks, Ice adhesion.

35-1176
Measurements of electrical surface conductivity of ice.
Nishimura, J., et al, *Low temperature science (Teion kagaku). Series A Physical sciences,* 1978, Vol 36, p.67-76, 11 refs., In Japanese with English summary.
Maeno, N.
Ice electrical properties, Electrical resistivity, Ice crystals, Ice temperature, Ice sublimation, Air temperature, Antarctica—Showa Station.
The surface conductivity of pure monocrystalline ice was measured as a function of temperature, crystallographic face, and sublimation rate Specimens of natural pure monocrystalline ice were collected from the *O-ike* pond near Showa Station At temperatures below -6C, an increase in surface conductivity with temperature was expressed, while at temperatures above -6C, the surface conductivity increased the rapid increase in surface conductivity near the melting point was caused by the appearance of a quasi-liquid layer on the ice surface The variation in temperature of the ice surface during sublimation was measured with fine copper-constantan thermocouples Then from the theory of heat conduction the rate of sublimation was calculated, which increased with rising temperature, but no abrupt change was found at a specific temperature near the melting point of ice The apparent activation energy for sublimation was 0 36 eV

35-1177
Studies of fluidized snow. 1. Formation of fluidized snow and its general properties.
Maeno, N., et al, *Low temperature science (Teion kagaku). Series A Physical sciences,* 1978, Vol.36, p 77-92, 12 refs., In Japanese with English summary
Nishimura, K
Snow physics, Liquid phases, Air flow, Velocity, Particle size distribution, Air temperature.

35-1178
Studies of fluidized snow. 2. Viscosity and heat transfer coefficient of fluidized snow.
Nishimura, K., et al, *Low temperature science (Teion kagaku) Series A Physical sciences,* 1978, Vol 36, p.93-102, 5 refs., In Japanese with English summary
Maeno, N.
Snow physics, Liquid phases, Viscosity, Heat transfer.

35-1179
Measurements of free water content of wet snow by calorimetric method.
Akitaya, E., *Low temperature science (Teion kagaku) Series A Physical sciences,* 1978, Vol 36, p 103-111, 3 refs., In Japanese with English summary.
Wet snow, Snow water content, Calorimeters, Temperature measurement, Water temperature.

35-1180
Rebound of falling snow flakes in snow accumulation process, I.
Kobayashi, D., *Low temperature science (Teion kagaku). Series A Physical sciences,* 1978, Vol 36, p.113-120, 5 refs., In Japanese with English summary.
Snowflakes, Snowfall, Snow accumulation, Snow mechanics, Wind factors, Slopes, Topographic effects.

35-1181
Urban-rural differences in the daily minimum air temperature during nocturnal radiative cooling in Sapporo.
Ishikawa, N., et al, *Low temperature science (Teion kagaku). Series A Physical sciences,* 1978, Vol.36, p.121-137, 18 refs., In Japanese with English summary
Aburakawa, H., Naruse, R.
Air temperature, Snow heat flux, Heat transfer, Radiation.

35-1182
Characteristics on the distribution of snow accumulation in Sapporo.
Naruse, R., et al, *Low temperature science (Teion kagaku). Series A Physical sciences,* 1978, Vol 36, p.139-153, 33 refs., In Japanese with English summary
Aburakawa, H
Snow cover distribution, Snow accumulation, Snow depth, Snowfall, Snowdrifts, Wind factors.

35-1183
Differences in snow-meltin. ; rate between urban and rural areas in Sapporo.
Aburakawa, H., et al, *Low temperature science (Teion kagaku). Series A Physical sciences,* 1978, Vol.36, p.155-168, 12 refs., In Japanese with English summary.
Ishikawa, N., Naruse, R.
Snow melting, Heat transfer, Microclimatology, Snow temperature, Meteorological factors, Albedo, Air temperature, Wind factors, Boundary layer.

35-1184
Experimental studies of snow accretion on electric lines by the use of a wind tunnel—growth of snow accretion under high wind speeds.
Wakahama, G., et al, *Low temperature science (Teion kagaku) Series A Physical sciences,* 1978, Vol 36, p 169-180, 10 refs., In Japanese with English summary.
Kobayashi, S., Tusima, K., Suzuki, S
Snow accumulation, Power lines, Wind tunnels, Wet snow, Adhesion, Wind factors, Velocity, Particles, Experimentation.

35-1185
Study of snow melting in Mt. Asahidake, Hokkaido.
Kubota, H., et al, *Low temperature science (Teion kagaku) Series A Physical sciences,* 1978, Vol.36, p 181-188, 5 refs., In Japanese with English summary.
Fukami, H., Ohmae, H., Kaneda, Y., Yamada, T
Snow melting, Slope orientation, Solar radiation, Snowmelt, Air temperature.

35-1186
Limiting mechanisms of dislocation motion in ice.
Lee, S., Urbana-Champaign, University of Illinois, 1979, 118p, University Microfilms order no 79-15381, Ph D thesis 59 refs.
Ice physics, Ice mechanics, Dislocations (materials), Velocity, Internal friction, Ice elasticity, Temperature effects, Stresses, Boundary value problems, Doped ice.

35-1187
Burning coal in Alaska—a winter experience.
Abegg, F., *American Society of Mechanical Engineers Publication,* 1980, 80-IPC Fu-2, 9p, 5 refs
Coal, Mining, Natural resources, Fuel transport, Electric power, Cold weather performance, Frozen cargo.

35-1188
Measurement of snowfall by MRL-2 radar. (Izmerenie kolichestva tverdykh osadkov s pomoshch'iu radiolokatora MRL-2),
Koloskov, B P., *Moscow Tsentral'naia aerologicheskaia observatoriia Trudy,* 1979, Vol 135, p 43-52, In Russian with English summary 27 refs
Precipitation (meteorology), Precipitation gages, Snowfall, Remote sensing, Radar echoes.

35-1189
Problems in meteorology and hydrology of Siberia. (Voprosy meteorologii i gidrologii Sibiri),
Filippov, A.Kh., ed, Irkutsk, 1976, 218p., In Russian. For selected papers see 35-1190 through 35-1193. Refs. passim.
Krasheninnikov, M.V.
DLC QC989.R5S4696
Lightning, Measuring instruments, Underground cables, Electrical grounding, Permafrost, Icebound rivers, Ice jams, Floods, Environmental protection, River basins, Snow water equivalent.

35-1190
Studying thunderstorms along buried communication cables in permafrost areas with lightning flash counters. (Instrumental'noe issledovanie grozovoĭ deiatel'nosti na trasse podzemnogo kabelia sviazi v raione vechnoĭ merzloty),
Par'ev, N.S., et al, Voprosy meteorologii i gidrologii Sibiri (Problems in meteorology and hydrology of Siberia) edited by A.Kh. Filippov and M.V. Krasheninnikov, Irkutsk, 1976, p.26-31, In Russian. 5 refs.
Krechetov, A.A., Polekh, N.A.
DLC QC989.R5S4696
Underground cables, Electrical grounding, Permafrost, Thunderstorms, Lightning, Measuring instruments.

35-1191
Classification of floods and their effects on natural environments and economic development of the Ob' and Chul'm river floodplains. (Navodneniia, ikh klassifikatsiia i vliianie na prirodu i ekonomiky poĭm Obi i Chul'ma),
Krasheninnikov, M.V., Voprosy meteorologii i gidrologii Sibiri (Problems in meteorology and hydrology of Siberia) edited by A Kh. Filippov and M.V Krasheninnikov, Irkutsk, 1976, p.128-136, In Russian. 4 refs
DLC QC989.R5S4696
Icebound rivers, Ice breakup, Ice jams, Floods, Environmental protection, USSR—Ob' River.

35-1192
Asynchronism of heavy and light snow winters in the basin of Lake Baykal. (Asinkhronnost' mnogosnezhnykh i malosnezhnykh zim v basseĭne oz Baĭkal),
Cherkasov, A E., et al, Voprosy meteorologii i gidrologii Sibiri (Problems in meteorology and hydrology of Siberia) edited by A Kh Filippov and M V Krasheninnikov, Irkutsk, 1976, p 145-148, In Russian 1 ref
Bruk, G A
DLC QC989 R5S4696
River basins, Snow accumulation, Snow depth, Snow water equivalent, USSR—Baykal Lake.

35-1193
Surface water resources in the Tomsk region. (Resursy poverkhnostnykh vod Tomskoĭ oblasty),
Krasheninnikov, M V., et al, Voprosy meteorologii i gidrologii Sibiri (Problems in meteorology and hydrology of Siberia) edited by A Kh Filippov and M V Krasheninnikov, Irkutsk, 1976, p 149-155, In Russian 5 refs.
Suvorov, V V
DLC QC989 R5S4696
Petroleum industry, Water supply, Surface water, Water pollution, Permafrost hydrology, Snow depth, Taiga, Snow water equivalent, USSR—Tomsk.

35-1194
Climatic regionalization of the Baykal Amur railroad area and the adjacent regions of economic development. (Klimaticheskoe rajonirovanie trassy BAM i prilegaiushchikh rajonov proizvodstvennogo osvoenia).
Gol'tsberg, I A., et al. *Leningrad Glavnaia geofizicheskaia observatoriia Trudy*, 1980. Vol 426, p 3-15. In Russian. 6 refs
Vasil'eva, L G
Maps, Engineering geology, Baykal Amur railroad, Snow cover distribution, Snow depth, Snowdrifts, Avalanche formation.

35-1195
Length of the frost-free period in the Baykal Amur railroad area.
Gol'tsberg, I A., *Leningrad. Glavnaia geofizicheskaia observatoriia Trudy*, 1980. Vol 426, p 16-22. In Russian
Frost forecasting, Baykal Amur railroad, Air temperature, Soil temperature, Maps.

35-1196
Wind regime in the Baykal Amur railroad area. (Vetrovoi rezhim na territorii osvoeniia BAM).
Romanova, E.N., *Leningrad. Glavnaia geofizicheskaia observatoriia Trudy*, 1980. Vol 426, p.23-34. In Russian. 7 refs
Meteorological charts, Wind velocity, Wind direction, Baykal Amur railroad, Engineering geology, Construction.

35-1197
Microclimatic peculiarities of wind regime in the Chara Basin. (Mikroklimaticheskie osobennosti vetrovogo rezhima Charskoi kotloviny)
Kalashnikov, A.V., *Leningrad Glavnaia geofizicheskaia observatoriia. Trudy*, 1980. Vol 426, p 35-42, In Russian 5 refs
Meteorological charts, Wind velocity, Wind direction, Baykal Amur railroad, River basins, USSR—Chara River.

35-1198
Minimum air temperature regime in the Chara Basin area at different weather conditions. (Rezhim minimal'noi temperatury vozdukha v raione Charskoi kotloviny pri raznykh usloviiakh pogody).
Vasil'eva, L.G., *Leningrad Glavnaia geofizicheskaia observatoriia. Trudy*, 1980. Vol.426, p 43-54. In Russian 9 refs.
Air temperature, Meteorological charts, Baykal Amur railroad, River basins, Weather forecasting, Meteorological data, USSR—Chara River.

35-1199
Theoretical model of hail processes and cloud modification with nucleating agents. (Teoreticheskaia model' gradovogo oblaka i aktivnogo vozdeistvia na gradovye protsessy s pomoshch'iu kristallizuiushchikh reagentov).
Zhekamukhov, M.K., et al. *Nal'chik. Vysokogornyi geofizicheskii institut Trudy*, 1980. Vol 45, p 3-39. In Russian. 20 refs
Zhakamikhov, Kh M.
Weather modification, Cloud dissipation, Hail clouds, Mathematical models, Nucleating agents.

35-1200
Influence of dissovled admixtures on the speed of movement of the fluid crystallization front. (O vliianii rastvorennykh primesei na skorost' peremeshchenia fronta kristallizatsii zhidkosteĭ).
Zhekamukhov, M K., *Nal'chik Vysokogornyi geofizicheskii institut. Trudy*, 1980. Vol.45, p.40-46. In Russian. 4 refs
Stefan problem, Water temperature, Impurities, Phase transformations, Ice crystals, Heat transfer.

35-1201
Artificial crystallization of cloud water droplets on AgI and PbI particles. (Iskusstvennaia kristallizatsiia kapel' vody osadkov pod deistviem chastits AgI i PbI).
Volkova, N A., et al. *Nal'chik Vysokogornyi geofizicheskii institut Trudy*, 1980. Vol 45, p.47-50. In Russian. 5 refs.
Kazankova, Z P., Medaliev, Kh.Kh
Weather modification, Hail clouds, Cloud dissipation, Nucleating agents, Lead iodide, Silver iodide.

35-1202
Dynamics of microbiological processes in soils and the factors influencing it, Pts. 1 and 2. (Dinamika mikrobiologicheskikh protsessov v pochve i obuslovlivaiushchie ee faktory).
Ryys, O., ed. Tallin, 1974, 2 vols., In Russian For selected papers see 35-1203 through 35-1216 Refs passim Materials of a symposium held in Kharku, Sep. 4-5, 1974.
DLC QR111.D55
Cryogenic soils, Soil microbiology, Bacteria, Biomass, Tundra, Taiga, Alpine landscapes.

35-1203
Review of data on temperature effect on the quantitative dynamics of soil microorganisms. (Obzor dannykh po vliianiu temperatury na kolichestvennuu dinamiku pochvennykh mikroorganizmov).
Rakhno, P Kh., Dinamika mikrobiologicheskikh protsessov v pochve i obuslovlivaiushchie ee faktory. Chast' I (Dynamics of microbiological processes in soils and the factors influencing it. Pt 1) edited by O. Ryys. Tallin, 1974, p.15-22. In Russian Refs p 20-22
DLC QR111.D55
Soil freezing, Seasonal freeze thaw, Soil microbiology, Permafrost, Bacteria.

35-1204
Changes in bacterial biomass in soils of different geographic zones. (Dinamika izmenenii razmerov bakterial'noi biomassy v pochvakh raznykh geograficheskikh zon).
Aristovskaia, T.V., et al. Dinamika mikrobiologicheskikh protsessov v pochve i obuslovlivaiushchie ee faktory. Chast' I (Dynamics of microbiological processes in soils and the factors influencing it. Pt 1) edited by O. Ryys. Tallin, 1974, p 23-29. In Russian 5 refs
Bagdanavichene, Z P., Efremova, T N.
DLC QR111 D55
Cryogenic soils, Bacteria, Biomass, Tundra, Taiga, Soil microbiology.

35-1205
Active multiplication of bacteria in frozen soils. (Ob aktivnom razmnozhenii bakterii v promerzshei pochve).
Tokhver, V., Dinamika mikrobiologicheskikh protsessov v pochve i obuslovlivaiushchie ee faktory. Chast' I (Dynamics of microbiological processes in soils and the factors influencing it. Pt 1) edited by O Ryys. Tallin, 1974, p.56-60. In Russian 4 refs.
DLC QR111.D55
Soil freezing, Seasonal freeze thaw, Frost penetration, Soil microbiology, Bacteria.

35-1206
Trends in studying numerical dynamics of microorganisms in Estonia. (Razvitie issledovanii kolichestvennoi dinamiki mikroorganizmov v Estonskoi SSR).
Rakhno, P Kh., Dinamika mikrobiologicheskikh protsessov v pochve i obuslovlivaiushchie ee faktory. Chast' I (Dynamics of microbiological processes in soils and the factors influencing it. Pt 1) edited by O. Ryys. Tallin, 1974, p 61-67. In Russian. 13 refs.
DLC QR111 D55
Soil freezing, Soil microbiology, Seasonal freeze thaw, Frost penetration.

35-1207
Psychrophilic bacteria of sod-podsolic soils. (Psikhrofil'nye bakterii dernovo-podzolistoi pochvy).
Skvortsova, I.N., Dinamika mikrobiologicheskikh protsessov v pochve i obuslovlivaiushchie ee faktory. Chast' I (Dynamics of microbiological processes in soils and the factors influencing it. Pt. 1) edited by O. Ryys. Tallin, 1974, p.68-70. In Russian 4 refs
DLC QR111.D55
Cryogenic soils, Podsol, Soil microbiology, Bacteria.

35-1208
Influence of aeration levels on multiplication of anaerobic and aerobic bacteria in sod-podsol soils. (Vliianie urovnei aeratsii na dinamiku razmnozhenia aerobnykh i anaerobnykh mikroorganizmov v dernovo-podzolistoi pochvey).
Emtsev, V.T., et al. Dinamika mikrobiologicheskikh protsessov v pochve i obuslovlivaiushchie ee faktory. Chast' I (Dynamics of microbiological processes in soils and the factors influencing it. Pt 1) edited by O Ryys, Tallin, 1974, p.83-87. In Russian. 10 refs
Nemova, L.I., Ignat'ev, N.N
DLC QR111.D55
Podsol, Aeration, Bacteria, Soil microbiology.

35-1209
Seasonal and short-range changes in microorganism populations in the rhizosphere of perennial grasses under polar conditions. (Sezonnye i kratkovremmenye izmenenia chislennosti mikroorganizmov v rizosfere mnogoletnikh zlakov v usloviiakh Zapolar'iaj.
Evdokimova, G A., Dinamika mikrobiologicheskikh protsessov v pochve i obuslovlivaiushchie ee faktory. Chast' I (Dynamics of microbiological processes in soils and the factors influencing it. Pt 1) edited by O. Ryys, Tallin, 1974, p 98-103. In Russian 7 refs
DLC QR111.D55
Cryogenic soils, Grasses, Roots, Microbiology, Polar regions.

35-1210
Relation between the population and biomass of bacteria and their respiration in tundra soils. (Sootnoshenie dinamiki chislennosti i biomassy bakterii s dykhaniem pochvy v zone tundry).
Parinkina, O M., Dinamika mikrobiologicheskikh protsessov v pochve i obuslovlivaiushchie ee faktory. Chast' I (Dynamics of microbiological processes in soils and the factors influencing it Pt. 1) edited by O. Ryys, Tallin, 1974, p.104-108. In Russian 10 refs.
DLC QR111.D55
Cryogenic soils, Soil microbiology, Bacteria, Tundra.

35-1211
Frost effect on nitrogen transformations in soils. (Vliianie promorazhivania na nitrifikatsionnuu sposobnost' pochvy).
Khonnolainen, G., et al. Dinamika mikrobiologicheskikh protsessov v pochve i obuslovlivaiushchie ee faktory. Chast' I (Dynamics of microbiological processes in soils and the factors influencing it. Pt 1) edited by O. Ryys, Tallin, 1974, p.136-139. In Russian
Reppo, E
DLC QR111.D55
Soil freezing, Seasonal freeze thaw, Soil microbiology, Frost penetration, Laboratory techniques.

35-1212
Relations between different biologic activity indices and properties of peat-bog soils in Kola Peninsula. (O sviazi mezhdu razlichnymi pokazateliami biologicheskoi aktivnosti i svoĭstvami torfiano-bolotnykh pochv Kol'skogo Poluostrova).
Pereverzev, V.N., et al. Dinamika mikrobiologicheskikh protsessov v pochve i obuslovlivaiushchie ee faktory. Chast' I (Dynamics of microbiological processes in soils and the factors influencing it, Pt 1) edited by O. Ryys, Tallin, 1974, p 140-142. In Russian
Golovko, E.A.
DLC QR111.D55
Swamps, Peat, Soil microbiology, USSR—Kola Peninsula.

35-1213
Variations in the numbers of oligonitrophilic microorganisms of West Siberian soils. (Dinamika chislennosti oligonitrofil'nykh mikroorganizmov v pochvakh Zapadnoĭ Sibiri).
Klevenskaia, I L., Dinamika mikrobiologicheskikh protsessov v pochve i obuslovlivaiushchie ee faktory. Chast' I (Dynamics of microbiological processes in soils and the factors influencing it. Pt 1) edited by O Ryys. Tallin, 1974, p.146-149. In Russian
DLC QR111 D55
Cryogenic soils, Soil microbiology, Seasonal freeze thaw, Swamps, Taiga.

35-1214
Dynamics of biologic activity in soddy, deeply podsolized soils of Salair. (Dinamika biologicheskoi aktivnosti dernovo-glubokoopodzolennykh pochv Salaira).
Naplekova, N.N., Dinamika mikrobiologicheskikh protsessov v pochve i obuslovlivaiushchie ee faktory. Chast' I (Dynamics of microbiological processes in soils and the factors influencing it. Pt 1) edited by O Ryys. Tallin, 1974, p 153-156. In Russian
DLC QR111.D55
Alpine landscapes, Cryogenic soils, Podsol, Soil microbiology, Seasonal variations, USSR—Salair Range.

35-1215
Dynamics of biologic activities of two types of forest tundra soils located east of the Ural Mountains. (Dinamika biologicheskoi aktivnosti dvukh tipov pochv lesotundry Zaural'ia).
Ishchenko, N F., Dinamika mikrobiologicheskikh protsessov v pochve i obuslovlivaiushchie ee faktory. Chast' II (Dynamics of microbiological processes in soils and the factors influencing it. Pt 2) edited by O Ryys, Tallin, 1974, p 118-121. In Russian 5 refs
DLC QR111.D55
Forest tundra, Podsol, Cryogenic soils, Soil microbiology.

35-1216
Microflora of mountain forest soils in the Urals. (Mikroflora gorno-lesnykh pochv Urala).
Firsova, V P., et al. Dinamika mikrobiologicheskikh protsessov v pochve i obuslovlivaiushie ee faktory. Chast' II (Dynamics of microbiological processes in soils and the factors influencing it, Pt 2) edited by O Ryys, Tallin, 1974, p.147-150. In Russian
Kulaĭ, G.A.
DLC QR111 D55
Forest soils, Taiga, Cryogenic soils, Soil microbiology, USSR—Ural Mountains.

35-1217
Global inventory of natural and anthropogenic emissions of trace metals to the atmosphere.
Nriagu, J.O., *Nature*, May 31, 1979, 279(5712), p 409-411, 47 refs. For comment see I-24175 or 35-1218
Atmospheric composition, Impurities, Fallout, Snow cover.
Presented are estimates of the production and emission into the atmosphere of several common ferrous and non-ferrous aerosols. Sources of these aerosols include (natural) forest fires, volcanoes, vegetation, and sea salt spray, and (man-induced) industrial, coal combustion, oil and gasoline, wood wastes incineration, and fertilizers. Ratios of trace metal production and deposition are determined through analysis of polar snow and ice including areas in the southern Hemisphere.

35-1218
Trace metals in remote Arctic snows: natural or anthropogenic.
Landy, M.P., et al. *Nature*, Apr. 10, 1980, 284(5756), p 574-576, 43 refs. For article being commented on see I-24174 or 35-1217.
Peel, D.A., Wolff, E W., Nriagu, J O., Boutron, C
Atmospheric composition, Fallout, Impurities, Snow cover.
Landy, Pelle, and Wolff question the reliability of the data quoted in Nriagu's article, on the basis that they are insufficient to draw the conclusions Nriagu reached. Nriagu defends the data. All agree that additional information is necessary before definitive conclusions can be reached on the trace metal pollutant problem. Boutron comments that although the trace metal fallout in Greenland snow appears to support the idea that the sources of most pollution are in the Northern Hemisphere, the actual accumulation of snow at Centrale Greenland is nearly a full order of magnitude greater than that at Dome C in Antarctica, implying that the fallout at both places cannot be compared on a one-to-one basis.

35-1219
Soviet glaciological studies in 1979. (Sovetskie glatsiologicheskie issledovaniia v 1979 godu).
Kotlıakov, V M., et al, *Akademiia nauk SSSR Institut geografii Materialy glatsiologicheskikh issledovanii Khronika obsuzhdenia*, 1980, Vol 38, p 5-13, In Russian.
Lapina, I IA
Glacier ice, Ice sheets, Paleoclimatology, Mapping, Spaceborne photography, Slope processes, Avalanches, Mudflows, Glacier mass balance, Glacial hydrology, Naleds, Antarctica.
The Academy of Sciences of the USSR, Institute of Geography and the Leningrad Arctic and Antarctic Institute, continuing the research program of the International Antarctic Glaciological Project, completed studies on thermal regime of the Antarctic ice sheet, calculated ice movements and temperatures, and identified thawing zones for different geothermal flux values and paleoclimatic fluctuations, concluding that future warming will not significantly affect glacier bed temperatures and ice flow trends in Central Antarctica, but the state of ice shelves and coastal ice sheet areas will play a major role in the general evolution of the ice cover. Drill cores from the Ross Ice Shelf revealed an ice accretion rate of 2 cm/yr at bottom surfaces strongly increasing in fresh-water inflow areas. Snow surveys along the Mirnyy-Vostok and Pionerskaya-Dome C routes were made and radar sounding data on thicknesses and movements of ice obtained for the Pionerskaya-Komsomol'skaya-Dome B route. Borehole studies of snow and ice strata were conducted at the Vostok and Pionerskaya stations.

35-1220
Working session of the Section of glaciology in February 1980. (Rabochee soveshchanie sektsii glatsiologii v fevrale 1980 g.).
Glazovskiĭ, A.F., *Akademiia nauk SSSR Institut geografii Materialy glatsiologicheskikh issledovanii. Khronika obsuzhdenia*, 1980, Vol 38, p 13-20, In Russian.
Meetings, Research projects, Theories, Maps, Glacier ice, Glaciology, Glacial deposits.

35-1221
Resolutions of the Working Session of the Section of Glaciology, Feb. 18-20, 1980. (Rezoliutsii rabochego soveshchaniia sektsii glatsiologii 18-20 fevralia, 1980 g.). *Akademiia nauk SSSR. Institut geografii. Materialy glatsiologicheskikh issledovanii. Khronika obsuzhdenia*, 1980, Vol 38, p.20-22, In Russian
Meetings, Glaciology, Research projects, Snow surveys, Ice surveys, Ice drills, Models, Maps, Glacier ice, Ice sheets.

35-1222
Problems and prospects of studying ice cores from glacier boreholes. (Znachenie i zadachi issledovaniia kerna iz lednikovykh skvazhin).
Kotlıakov, V.M., et al, *Akademiia nauk SSSR Institut geografii Materialy glatsiologicheskikh issledovanii Khronika obsuzhdenia*, 1980, Vol 38, p 22-26, In Russian
Gordienko, F G
Glacier ice, Drilling, Boreholes, Ice cores, Drill core analysis, Paleoclimatology, Ice dating, Isotope analysis.

35-1223
Heat and mass transfer at the lower surface of the Ross Ice Shelf. (Teplo- i massoobmen u nizhnei poverkhnosti shel'fovogo lednika Rossa).
Zotikov, I A., et al, *Akademiia nauk SSSR. Institut geografii Materialy glatsiologicheskikh issledovanii Khronika obsuzhdenia*, 1980, Vol.38, p 27-36, In Russian with English summary. 15 refs.
Zagorodnov, V S., Raikovskiĭ, IU V.
Ice shelves, Subglacial navigation, Ice bottom surface, Acoustic measurement, Ice accretion, Ice melting, Drilling, Ice drills, Ice cores, Drill core analysis, Antarctica—Ross Sea.
In December 1978 a 416-meter hole was drilled through the Ross Ice Shelf. Ice core samples revealed two layers: the upper fresh-water ice 410 m thick, and the lower 6 meters of sea ice, the salinity of which varied from 2‰ at the fresh ice boundary to 4.5 at a half-meter distance from its bottom surface. Crystals at the bottom 5 mm in cross-section formed cross-section, parallel rows of vertical plates oriented in the same direction. Ice accretion by sea water freezing proceeds at a rate of 2 cm/yr with marked acceleration in the fresh-water inflow areas. It is believed that the climatic warm-up, expected during the next 50-100 years, will not destroy the ice shelf.

35-1224
Isotope and chemical composition of snow cover in East Antarctica (Studies along the Mirnyy-Vostok profile). (Ob izotopnom i khimicheskom sostave snezhnogo pokrova v Vostochnoĭ Antarktide (po issledovaniiam na profile Mirnyĭ-Vostok)).
Gordienko, F G., et al, *Akademiia nauk SSSR Institut geografii Materialy glatsiologicheskikh issledovanii Khronika obsuzhdenia*, 1980, Vol.38, p 36-48, In Russian with English summary. 28 refs.
Kotlıakov, V M., Smirnov, K.E.
Snow cover distribution, Snow cover structure, Snow composition, Isotope analysis, Metamorphism (snow), Snow stratigraphy, Antarctica—Mirnyy Station, Antarctica—Vostok Station.
Snow surveys along the Mirnyy-Vostok route included observation of diagenetic processes in the surface layers of ice, stratigraphic studies in boreholes and sampling of snow, firm and ice for physical and isotope analyses. Accumulation variations were determined from snow contents of oxygen-18, tritium, Pb-210, Sr-90 and Cs-137 isotopes by five different methods as shown in tabulated results. Discrepancies between the stratigraphic and isotope accumulation data are discussed. Comparison of element concentrations of marine, continental and cosmic origin in snow showed the predominance of sea-moisture in the Antarctic ice cover alimentation, its mean annual accumulation amounting in absolute values to 12-14 g/sq cm at the Pionerskaya Station, 7 g/sq cm at Vostok-1 and 2 g/sq cm at Vostok 2.

35-1225
Mathematical modelling of ice formation processes in the spray of artificial rain. (Matematicheskoe modelirovanie protsessa l'doobrazovaniia v fakele iskusstvennogo dozhdia).
Sosnovskiĭ, A V., *Akademiia nauk SSSR. Institut geografii Materialy glatsiologicheskikh issledovanii Khronika obsuzhdenia*, 1980, Vol 38, p 49-54, In Russian with English summary. 5 refs.
Artificial ice, Ice formation, Raindrops, Ice accretion, Mathematical models.

35-1226
Freezing of artificial rain drops. (Zamerzanie kapel' iskusstvennogo dozhdia).
Sosnovskiĭ, A V., *Akademiia nauk SSSR Institut geografii Materialy glatsiologicheskikh issledovanii Khronika obsuzhdenia*, 1980, Vol.38, p 54-59, In Russian with English summary. 11 refs.
Artificial ice, Cold weather tests.

35-1227
Model of snow cover formation in the southern Sikhote-Alin. (Model' formirovaniia snezhnogo pokrova v iuzhnom Sikhote-Aline).
Mahugin, IU F., *Akademiia nauk SSSR. Institut geografii Materialy glatsiologicheskikh issledovanii Khronika obsuzhdenia*, 1980, Vol 38, p 60-68, In Russian with English summary. 14 refs.
Snow cover distribution, Slope processes, Slope orientation, Snow depth, Snow air interface, Heat transfer, Mathematical models, Snow accumulation, USSR—Sikhote Alin.

35-1228
Statistical structure of snow reserve fields in Southern Sikhote-Alin. (Statisticheskaia struktura polia snegozapasov v iuzhnom Sikhote-Aline).
Mahugin, IU F., *Akademiia nauk SSSR Institut geografii Materialy glatsiologicheskikh issledovanii Khronika obsuzhdenia*, 1980, Vol 38, p 69-73, In Russian with English summary. 12 refs.
Snow cover distribution, Snow accumulation, Snow water equivalent, Water reserves, Statistical analysis, Topographic effects, Climatic factors, USSR—Sikhote Alin.

35-1229
Interactions within the system of "long" snow fields. (Vzaimodeĭstvie v sisteme "dlinnykh" snezhnikov).
Mazo, V L., *Akademiia nauk SSSR Institut geografii. Materialy glatsiologicheskikh issledovanii Khronika obsuzhdenia*, 1980, Vol 38, p 74-79, In Russian with English summary. 7 refs.
Nivation, Glaciers, Air temperature, Heat flux, Ice air interface, Snow air interface, Heat transfer, Mass transfer.

35-1230
Mathematical modeling of snow avalanches. (Matematicheskoe modelirovanie snezhnykh lavin).
Eglit, M E., et al, *Akademiia nauk SSSR Institut geografii Materialy glatsiologicheskikh issledovanii Khronika obsuzhdenia*, 1980, Vol 38, p.79-84, In Russian with English summary. 10 refs.
Sveshnikova, E.I.
Avalanche modeling, Avalanche formation, Avalanche triggering, Avalanche mechanics.

35-1231
Calculating of snow cover stability on mountain slopes. (Metod rascheta ustoichivosti snezhnogo pokrova na sklonakh gor).
Bozhinskiĭ, A N., et al, *Akademiia nauk SSSR Institut geografii Materialy glatsiologicheskikh issledovanii Khronika obsuzhdenia*, 1980, Vol 38, p 84-88, In Russian with English summary. 6 refs.
Bobryshev, A.V.
Slopes, Snow cover stability, Slope orientation, Avalanche formation, Avalanche triggering.

35-1232
Proceedings of an international symposium on the distribution and forecasting of runoff from glaciers and glaciated areas. (Trudy mezhdunarodnogo simpoziuma po raspredeleniiu i prognozu stoka s lednikov i iz lednikovykh raionov).
Korzun, V E., *Akademiia nauk SSSR Institut geografii Materialy glatsiologicheskikh issledovanii Khronika obsuzhdenia*, 1980, Vol 38, p 89-90, In Russian
Meetings, Glacial hydrology, Mountain glaciers, Glacier alimentation, Ablation, Glacier surfaces, Ice air interface, Heat transfer, Mass balance.

35-1233
Selecting the method of measuring energy balance of glacier surfaces. (O vybore metodiki izmerenii energeticheskogo balansa poverkhnosti lednikov).
Radok, U., *Akademiia nauk SSSR Institut geografii Materialy glatsiologicheskikh issledovanii Khronika obsuzhdenia*, 1980, Vol 38, p 90-92, In Russian. English text p 173-174. 3 refs.
Mountain glaciers, Glacier surfaces, Glacier alimentation, Glacier ablation, Heat balance.

35-1234
Two-step multidimensional regression analysis and prediction of ablation rate on glacier surfaces. (Dvukhstupenchatyĭ mnogomernyĭ regressionnyĭ analiz i predvychislenie polia skorosti abliatsii na poverkhnosti lednikov).
Shumskiĭ, P A., et al, *Akademiia nauk SSSR Institut geografii Materialy glatsiologicheskikh issledovanii Khronika obsuzhdenia*, 1980, Vol.38, p.92-98, In Russian. English text p 175-180. 2 refs.
Voloshina, A P., Krass, M S
Mountain glaciers, Glacier ablation, Forecasting, Runoff, Flow rate.

35-1235
Basic assumptions of the method of radiation balance calculation on the physical surface of mountain glaciers during ablation. (Osnovnye polozheniia metoda rascheta radiatsionnogo balansa fizicheskoĭ poverkhnosti gornogo ledника v period abliatsii).
Cherkasov, P.A., *Akademiia nauk SSSR Institut geografii Materialy glatsiologicheskikh issledovanii. Khronika obsuzhdenia*, 1980, Vol 38, p 98-104, In Russian English text p 181-185 2 refs
Mountain glaciers, Glacier ablation, Glacier surfaces, Radiation balance.

35-1236
Radiation balance at the equilibrium line of Hintereisferner (Oetztal Alps), 1971. (Radiatsionnyi balans na gramitse pitaniia ledника Khinterainferner (Etstal'skie Al'py) v 1971 godu).
Wagner, H.P., *Akademia nauk SSSR Institut geografii. Materialy ghatsiologicheskikh issledovanii Khronika obsuzhdenia*, 1980, Vol 38, p 104-107, In Russian. English text p.185-187 10 refs.
Mountain glaciers, Glacier alimentation, Glacier ablation, Glacier surfaces, Radiation balance, Albedo, Snowfall.

35-1237
Theoretical and practical aspects of calculating runoff from glaciated areas. (Teoreticheskie i prakticheskie voprosy rascheta stoka iz ledникovykh oblastei).
Lang, H., *Akademia nauk SSSR Institut geografii Materialy ghatsiologicheskikh issledovanii. Khronika obsuzhdenia*, 1980, Vol 38, p 107-115, In Russian English text p 187-294. 6 refs
Mountain glaciers, Glacier ablation, Runoff, Glacial hydrology.

35-1238
Mass balance of glaciers and general atmospheric circulation. (Balans massy ledникov i obshchaia tsirkuliatsiia atmosfery).
Dreiseitl, E., *Akademia nauk SSSR. Institut geografii Materialy ghatsiologicheskikh issledovanii Khronika obsuzhdenia*, 1980, Vol.38, p.115-118, In Russian English text p 194-196 9 refs
Mountain glaciers, Glacier oscillation, Glacier mass balance, Glacier alimentation, Glacier ablation, Mathematical models.

35-1239
Measurements of water vapor condensation on the surface of perennial snow fields. (Izmerenia kondensatsii vodianogo para na poverkhnost' mnogoletnego snezhnika).
Higuchi, K., et al, *Akademiia nauk SSSR. Institut geografii Materialy ghatsiologicheskikh issledovanii Khronika obsuzhdenia*, 1980, Vol 38, p 118-121, In Russian English text p 196-198. 5 refs
Moribayashi, S
Mountains, Nivation, Snow accumulation, Snow surface, Water vapor, Condensation.

35-1240
Snow and glacier contributions in a Western Himalayan catchment. (Rol' snega i ledникov v stoke rek Zapadnykh Gimalaev).
Bahadur, J.B., et al, *Akademia nauk SSSR Institut geografii Materialy ghatsiologicheskikh issledovanii. Khronika obsuzhdenia*, 1980, Vol.38, p.121-125, In Russian English text p 199-202.
Murty, A.S., Lal, V.B., Das, M.S
Mountain glaciers, Glacier ablation, Runoff, Glacial hydrology, Snow cover effect.

35-1241
Mass transfer variations in glaciers of the Caucasus during the last 35-40 years and their influence on river water content. (Izmenenia massoobmena ledникov Kavkaza za poslednie 35-40 let i ikh vliianie na vodnost' rek).
Tsomaia, V.Sh., *Akademia nauk SSSR Institut geografii Materialy gliatsiologicheskikh issledovanii Khronika obsuzhdenia*, 1980, Vol.38, p.125-130, In Russian. English text p.202-205 13 refs.
Mountain glaciers, Glacial rivers, Glacial hydrology, Runoff, USSR—Caucasus.

35-1242
Study of the Central Himalayan glacier Millam. (Issledovania tsentral'no-gimalaiskogo ledника Millam).
Joshi, B.P., *Akademia nauk SSSR Institut geografii Materialy ghatsiologicheskikh issledovanii Khronika obsuzhdenia*, 1980, Vol.38, p.130-1..2, In Russian English text p 206-207.
Mountain glaciers, Glacial rivers, Glacial hydrology, Glacier alimentation, Glacier ablation, Himalaya Mountains.

35-1243
Mass balance of Gara Glacier and its relation to meltwater discharge for the years 1974-77. (Balans massy ledника Gara i ego sviaz' s zhidkim stokom za 1974-77 gody).
Vohra, C., et al, *Akademia nauk SSSR Institut geografii. Materialy ghatsiologicheskikh issledovanii Khronika obsuzhdenia*, 1980, Vol 38, p 132-136, In Russian English text p 208-212
Mountain glaciers, Glacier ice, Glacier mass balance, Glacier alimentation, Glacier ablation.

35-1244
Ice and water balance of the Vernagtferner in 1974-1977. (Vodno-ledovyi balans ledника Fernagtferner v 1974-77 gg.).
Reinwarth, O., *Akademia nauk SSSR Institut geografii Materialy ghatsiologicheskikh issledovanii Khronika obsuzhdeniia*, 1980, Vol 38, p 137-138, In Russian. English text p.213-214
Mountain glaciers, Glacier mass balance, Glacier alimentation, Glacier ablation, Photogrammetric surveys, Geodetic surveys.

35-1245
Comparison of mass balance and runoff at four glaciers in the United States, 1966 to 1977. (Sravnitel'naia kharakteristika balansa massy i stoka chetyrekh ledникov v S.Sh.A. s 1966 po 1977 gg.).
Meier, M., et al, *Akademia nauk SSSR Institut geografii Materialy gliatsiologicheskikh issledovanii Khronika obsuzhdenia*, 1980, Vol 38, p 138-143, In Russian English text p 214-216 4 refs
Mayo, L., Trabant, D., Krimmel, R.
Mountain glaciers, Glacier ice, Mass balance, Runoff, Glacial hydrology.

35-1246
Ice and water balances, South Cascade glacier, 1975-1977. (Ledovyi i vodnyi balans IUzhnogo Kaskadnogo ledника v 1957-77 gg.).
Krimmel, R.K., et al, *Akademia nauk SSSR Institut geografii Materialy gliatsiologicheskikh issledovanii Khronika obsuzhdenia*, 1980, Vol 38, p 143-147, In Russian English text p 217-219 5 refs
Tangborn, V., Sikonia, G., Meier, M
Mountain glaciers, Glacier mass balance, Glacier alimentation, Glacier ablation.

35-1247
Dynamics and regime of water-ice balance components of the Dzhankaut Glacier and its basin, Central Caucasus. (Dinamika i rezhim sostavliaushchikh vodno-ledovogo balansa ledника i gornoledникovogo basseina Dzhankaut na Tsentral'nom Kavkaze).
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Mountain glaciers, Glacier mass balance, Glacier alimentation, Glacier ablation, USSR—Caucasus.

35-1248
Role of snow cover in the modelling of water balance. (Rol' snezhnogo pokrova v modelirovanu vodnogo balansa).
Balek, J., *Akademia nauk SSSR Institut geografii Materialy gliatsiologicheskikh issledovanii Khronika obsuzhdenia*, 1980, Vol 38, p 152-157, In Russian English text p.225-228. 4 refs
Mountain glaciers, Water balance, Snow cover effect, Models, Glacial hydrology.

35-1249
Studying transformations of dispersive and chemical compositions of atmospheric precipitation on glaciers. (Issledovanie transformatsii dispersnogo i khimicheskogo sostava atmosfernykh osadkov v ledникakhh).
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Mountain glaciers, Glacier ice, Runoff, Water chemistry, Glacier alimentation, Precipitation (meteorology), Glacial hydrology.

35-1250
Chemical composition and properties of Kazakhstan glacier meltwater. (Khimicheskii sostav i kachestvo talykh vod ledникov Kazakhstana).
Vilesov, E.N., et al, *Akademia nauk SSSR Institut geografii. Materialy ghatsiologicheskikh issledovanii Khronika obsuzhdenia* 1980, Vol 38, p 162-166, In Russian English text p 233-237 5 refs.
Tokmagambetov, G.A., Cherkasov, P.A
Glacier ablation, Glacial hydrology, Runoff, Meltwater, Chemical composition

35-1251
Specific features in the formation of chemical composition of natural waters in East Antarctica. (Osobennosti formirovania khimicheskogo sostava prirodnykh vod Vostochnoĭ Antarktidy).
Bardin, V.I., et al, *Akademia nauk SSSR Institut geografii Materialy ghatsiologicheskikh issledovanii Khronika obsuzhdenia*, 1980, Vol 38, p 166-171, In Russian English text p 237-240 13 refs
Shmideberg, N.A.
Land ice, Ice sheets, Glacial hydrology, Ablation, Meltwater, Snowmelt, Lake water, Chemical composition, Classifications, Antarctica—East Antarctica.
The influence of the ocean predominates in the salt composition of East Antarctica's waters the lithochemical factors being secondary and the human factor negligible Over 100 samples of snow glacial melt and lake waters were collected from different regions and chemically analyzed They represent waters formed mainly in the marginal zone of East Antarctica's ice cover The coefficients Na-Cl, (Cl-Na) Mg and (Na-Cl) SO4 were used in hydrochemical interpretations and separation of three water types the chloride type (oceanic influence) the hydrocarbonate type (continental conditions) and the sulfate type (intermediate) Oceanic influence was most pronounced in marginal ice sheets containing oases and less distinctive in the continuous glaciation zone High Cl and SO4 ion concentrations in the majority of lakes are of atmospheric origin, while in the lakes with different alimentation type and catchment area specifics (Schirmacher and Amery oases) the SO4 values are lower due to meltwater inflow sulfur consumption by living organisms and, possibly desulfuration processes

35-1252
Estimating the efficiency of avalanche-protection structures in the Khibiny Mountains from operational results in 1935-1978. (Otsenka effektivnosti protivolavinnykh sooruzhenii v Khibinakh po rezul'tatam ikh ekspluatatsii v 1935-1978).
Rzhevskii, B.N., et al, *Akademia nauk SSSR Institut geografii Materialy ghatsiologicheskikh issledovanii Khronika obsuzhdenia*, 1980, Vol 38, p 241-249, In Russian with English summary. 21 refs
Shall', E.E.
Avalanches, Avalanche engineering, Snow accumulation, Avalanche formation, Avalanche triggering, Countermeasures, Snow (construction material).

35-1253
Methods and results of studying the Medeo artificial skating rink. (Metody i rezul'taty issledovanua uslovii sushchestovovanua iskusstvennogo katka Medeo).
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Artificial ice, Ice formation, Ice temperature, Ice structure.

35-1254
Some effects of artificial ice production by sprinklers. (Nekotorye effekty iskusstvennogo namorazhivanua l'da dozhdevaniem).
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Khodakov, V.G., Charushnikov, IU.A
Artificial ice, Ice formation, Rain, Heat transfer, Equipment.

35-1255
Experience in direct use of glaciers for winter water supply. (Opyt neposredstvennogo ispol'zovania ledника dlia zimnego vodosnabzhenua).
Gus'kov, A.S., et al, *Akademia nauk SSSR Institut geografii Materialy ghatsiologicheskikh issledovanii Khronika obsuzhdenia*, 1980, Vol 38, p 260-264, In Russian with English summary 5 refs
Osokin, N.I., Troitskii, L.S., Khodakov, V.G
Glacier ice, Ice melting, Water supply, Water pipelines, Cold weather operation.

35-1256
Allowing for glacioclimatic factors in open-pit mining. (Vliianie i uchet glatsioklimaticheskikh faktorov pri otkrytoi razrabotke poleznykh iskopaemykh).
Krasnosel'skii, E B., *Akademiia nauk SSSR Institut geografii Materialy glatsiologicheskikh issledovanii. Khronika obsuzhdenia* 1980. Vol 38, p 264-268. In Russian with English summary. 6 refs
Mining, Excavation, Transportation, Tailings, Frozen ground, Snowdrifts, Icing, Wind factors.

35-1257
Protective measures in glacial mudflow areas. (Spetsifika protivoselevykh meropriiatii v bassemakh glatsial'nogo seleformirovaniia).
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Slope processes, Mudflows, Glacial hydrology, Moraines, Glacial lakes.

35-1258
Workshop on the study of naleds along the Baykal Amur railroad and other areas of the uSSR. (Soveshchanie-seminar "Izuchenie naledei trassy BAM i drugikh raionov SSSR").
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Furman, M Sh
Icing, Permafrost hydrology, Naleds, Meetings, Baykal Amur railroad.

35-1259
Peculiarities of radio echo sounding of mountain glaciers and the design of special instruments for glaciological investigations. (Osobennosti radiolokatsionnogo zondirovanna gornykh ledmkov i postroenna spetsializirovannoi apparatury dlia glatsiologicheskikh issledovanii).
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Airborne radar, Aerial surveys, Glacier ice, Radar echoes, Ice cover thickness, Measuring instruments, Design.

35-1260
Radar echo sounding of Spitsbergen glaciers in 1977. (Radiolokatsionnoe zondirovanie ledmkov Shpitsbergena v 1977 godu).
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Zhuravlev, A B , Gromyko, A N
Airborne radar, Glacier ice, Radar echoes, Ice cover thickness, Measuring instruments, Norway—Spitsbergen.

35-1261
Influence of river flow control on ice conditions in the Arctic Ocean. (O vliianii pereraspredelenia rechnogo stoka na ledovyi rezhim Severnogo Ledovitogo okeana).
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River flow, Ice conditions, Flow control, Polar regions, Rivers, Arctic Ocean.

35-1262
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35-1263
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Glacial geology, Frost shattering, Glacial deposits, Lithology, Canada—New Brunswick—Grand Manan Island.

35-1264
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Glacial deposits, Lacustrine deposits, Stratigraphy, Glacial lakes, Paleoclimatology, Glaciation, History.

35-1265
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35-1266
Temperature profiles in the Barnes Ice Cap, Baffin Island, Canada, and heat flux from the subglacial terrane.
Hooke, R.L , et al, *Canadian journal of earth sciences*, Sep 1980, 17(9), p 1174-1188, In English with French summary 23 refs
Alexander, E C , Jr , Gustafson, R.J
Ice temperature, Glacier flow, Glacier mass balance, Heat flux, Boreholes, Radio echo soundings, Subglacial observations, Temperature measurement, Temperature variations.

35-1267
Glacial Lake Coppermine, north-central District of Mackenzie, Northwest Territories.
St-Onge, D A , *Canadian journal of earth sciences*, Sep 1980, 17(9), p 1310-1315, In English with French summary 8 refs
Glacial deposits, Lacustrine deposits, Lithology, Glacial lakes, Radioactive age determination.

35-1268
Research activities at Mizuho Station, 1977. (Mizuho kichi tsumen kansoku ky).
Fujii, Y., *Polar news (Kyokuchi)*, Jan 1980, No 30, p 2-10, In Japanese
Ice sheets, Heat transfer, Weather observations, Ice sublimation, Antarctica—Mizuho Station.
Glaciological and meteorological research was carried out at Mizuho Station from Feb 1977 to Jan 1978 as part of the 18th JARE. The main subjects of glaciological study were the microparticle concentration in surface snow and in a 30m deep core and mass and heat exchanges at the ice sheet surface. Daily mass exchange at surface was obtained in the deposition erosion process by a stake method and in the condensation sublimation process by the evaporimeter method and a bulk formula method. Condensation prevailed from mid-April to mid-September and sublimation the rest of the year. Detailed mapping of a 100m-square area was done bimonthly. Surface synoptic weather observations were also made

35-1269
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Tsvetaeva, Z.N , ed
Environmental protection, Human factors, Economic development, Pollution, Mining, Petroleum industry, Construction, Tundra, Taiga, Steppes.

35-1270
Background levels and biochemical cycle of carbon dioxide in the Arctic: requirements for multimedia monitoring. (Fonovye urovni i biokhimicheskii tsikl CO2 v Arktike trebovania k mnogosrednomu monitoringu).
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Polar regions, Carbon dioxide, Air pollution, Gases, Aerosols, Monitors.

35-1271
Giant power plant in the Sayan Mountains. (Gigant energetiki v Saianakh).
Mikhailov, L P , et al, Moscow, Energia, 1980, 104p , In Russian with English table of contents enclosed
Grigor'ev, IU A , Sadovskii, S.I
Electric power, Hydraulic structures, Dams, Concrete structures, Permafrost beneath structures, USSR—Sayan Mountains.

35-1272
All-Union scientific conference on chemistry of low temperatures, Moscow, Nov.28-29, 1979. Abstracts. (Tezisy dokladov).
Vsesoiuznoe nauchnoe soveshchanie po khimii nizkikh temperatur, Moscow, Nov 28-29, 1979, Moscow, Universitet, 1979, 90p In Russian For selected abstracts see 35-1273 through 35-1276
Water, Solutions, Phase transformations, Ice crystal growth, Salt ice, Freezing rate, Ice removal.

35-1273
Thermodynamic analysis of cryochemical crystallization of water-salt solutions. (Termodinamicheskii analiz kriokhimicheskoi kristallizatsii vodno-solevykh rastvorov).
Oleinkov, N.N., et al, Vsesoiuznoe nauchnoe soveshchanie po khimii nizkikh temperatur, Moscow, Nov 28-29, 1979 Tezisy dokladov (All-Union scientific conference on chemistry of low temperatures, Moscow, Nov 28-29, 1979 Abstracts), Moscow, Universitet, 1979, p 76, In Russian
Tret'iakov, IU.D
Water, Solutions, Phase transformations, Ice crystal growth, Analysis (mathematics).

35-1274
Cryocalorimetry of the solution of ice and frozen water-soluble salt granules in organic solvents. (Kriokalorimetriia rastvorenna l'da i vodno-solevykh zamorozhennykh granul v organicheskikh rastvoritelakh).
Naumov, S V., et al, Vsesoiuznoe nauchnoe soveshchanie po khimii nizkikh temperatur, Moscow, Nov 28-29, 1979 Tezisy dokladov (All-Union scientific conference on chemistry of low temperatures, Moscow, Nov 28-29, 1979 Abstracts), Moscow, Universitet, 1979, p.78, In Russian.
Mozhaev, A P , Gordeev, I V
Water, Solutions, Phase transformations, Salt ice, Ice melting.

35-1275
Low temperature scanning calorimetry technique of studying crystallization of water solutions of sulfates. (Izuchenie protsessov kristallizatsii vodnykh rastvorov sul'fatov metodom nizkotemperaturnoi kalorimetrii).
Naumov, S V , et al, Vsesoiuznoe nauchnoe soveshchanie po khimii nizkikh temperatur, Moscow, Nov 28-29, 1979 Tezisy dokladov (All-Union scientific conference on chemistry of low temperatures, Moscow, Nov 28-29, 1979 Abstracts), Moscow, Universitet, 1979, p 79, In Russian
Mozhaev, A P , Tret'iakov, IU D
Water, Solutions, Phase transformations, Ice crystal growth, Freezing rate.

35-1276
Studying processes of ice cryoextraction by organic solvents. (Issledovanie protsessov kriekstraktsii l'da organicheskimi rastvoritelami).
Telegina, L I , et al, Vsesoiuznoe nauchnoe soveshchanie po khimii nizkikh temperatur, Moscow, Nov 28-29, 1979 Tezisy dokladov (All-Union scientific conference on chemistry of low temperatures, Moscow Nov 28-29, 1979 Abstracts), Moscow, Universitet, 1979, p 80, In Russian
Mozhaev, A P , Tret'iakov, IU D
Water, Solutions, Phase transformations, Ice crystal growth, Ice removal.

35-1277
Optimizing the development and arrangement of the construction base in the Baykal Amur railroad area. (Optimizatsia razvitia i razmeshchenia stroitel'noi bazy zony BAM).
Belonogova, A E , Dolgosrochnoe planirovanie v otraslevykh sistemakh (v zone BAM i drugikh raionakh) (Long-range planning in industrial systems of the Baykal Amur railroad area and other regions) edited by A M Alekseev and V N. Kruchkov, Novosibirsk, 1978, p 36 - 5 In Russian 10 refs
Construction equipment, Construction materials, Baykal Amur railroad, Logistics.

35-1278
New antifreeze admixtures for unheated concreting and grouting. (Novye protivomorozhnye dobavki dlia bezobogrevnogo betonirovanna i omonolichivania).
Dobshits, L M , Moscow *Institut inzhenerov zheleznodorozhnogo transporta Trudy*, 1979 Vol 625, p 47-55, In Russian 2 refs
Winter concreting, Concrete placing, Grouting, Concrete freezing, Mortars, Concrete admixtures, Cement admixtures.

35-1279
Theories of nonlinear ... ak soil consolidation and possibilities of their application in engineering practice. (Teorii nelineinoi konsolidatsii slabykh gruntov i vozmozhnosti ikh primeneniia v inzhenernoi praktike).
Razorenov, N I., *Moscow Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1979, Vol.625, p.94-98, In Russian 7 refs
Clay soils, Soil water, Soil compaction, Bearing strength, Compressive properties.

35-1280
Infrastructure in the system of regional economic development complex of the North (Research methods). (Infrastruktura v sisteme regional'nogo khoziaistvennogo kompleksa Severa (Metodicheskie osobennosti issledovaniia)).
Krasnopol'skii, B Kh., Moscow, Nauka, 1980, 145p., In Russian with English table of contents enclosed Refs. p 140-144
Economic development, Natural resources, Mining, Construction, Transportation, Urban planning, Bibliographies.

35-1281
Soil formation in Central Siberian tundras. (Pochvoobrazovanie v tundrakh Srednei Sibiri).
Vasil'evskaia, V.D., Moscow, Nauka, 1980, 235p., In Russian with English table of contents enclosed Refs p 218-233.
Tundra, Landscape types, Soil formation, Swamps, Patterned ground, Active layer, Frozen rock temperature, Soil temperature, Soil formation, Soil chemistry, Bibliographies.

35-1282
Regularities governing changes in regimes of Arctic seas in natural hydrologic periods. (Osnovnye zakonomernosti izmenchivosti rezhima Arkticheskikh morei v estestvennykh gidrologicheskikh periodakh).
Krutskikh, B A., Leningrad, Gidrometeoizdat, 1978 91p., In Russian with English table of contents enclosed 119 refs
DLC GC401 K78
Water transport, Ice conditions, Synoptic meteorology, Hydrology, Mapping, Arctic Ocean.

35-1283
Improving the stability of excavations in placer shafts of the North. (Povyshenie ustoichivosti vyrabotok rossypnykh shakht Severa).
Sherstov, V A., et al, Novosibirsk, Nauka, 1980, 56p., In Russian with English table of contents enclosed 20 refs
Skuba, V.N
Placer mining, Permafrost, Shafts (excavations), Ventilation, Frozen rocks, Thermal regime, Thermal insulation, Artificial freezing.

35-1284
Problem of a glacier inventory of Antarctica.
Swithinbank, C., *International Association of Hydrological Sciences Publication*, 1980, No 126, p 229-236, In English w French summary. 8 refs.
Ice sheets, Mapping, Antarctica.
The Antarctic ice sheet is considered in terms of the data requirements for a World Glacier Inventory. Twenty years of uninterrupted effort by 10 nations since the International Geophysical Year of 1957-1958 have produced less than 20 per cent of the maps needed to depict the ice sheet at the minimum inventory scale of 1:250,000. Only half the coastline has been mapped at this scale. The largest scale at which the whole ice sheet has been mapped is 1:2,000,000 and the maps of this series contain some errors greater than 100 km. The prospects for filling the polar data vacuum are discussed in terms of conventional mapping, satellite photo-mapping, air photography, remote sensing and ground truth. (Auth)

35-1285
Morphology and chemical composition of natural population of an ice-associated antarctic diatom *Navicula glacici*.
Whitaker, T.M., et al, *Journal of phycology*, June 1980, 16(2), p 250-257, 38 refs
Richardson, M G
Sea ice, Marine biology, Plankton, Chemical composition, Signy Island.
During winter (1973) a very pure natural population of the diatom *Navicula glacier* Van Heurck occurred in dense concentrations (up to 244 mg sq m chlorophyll a in the sea ice at Signy Island, South Orkneys, Antarctica. Samples of algal material were collected for subsequent chemical analysis. The diatom had a composition of 34.7% ash, 21.81 lipid, 25.38 crude protein, 19.04% crude carbohydrate and an intact calorific value of 15.384 kJ g. Carbon, hydrogen, nitrogen and phosphorus formed 34.5, 3.4, 1 and 0.52 % dry wt respectively. The material was analysed for the trace elements Na, K, Fe, Ca, Mg, Al, Zn, Cu, Pb, Mn, Cs-137. Fatty acid composition was dominated by 16:0 palmitic acid (20.46%), 16:1 palmitoleic acid (32.86%) and 20:5 docosahexaenoic acid (19.33%). To supplement a very scanty original description a full taxonomic description is given in the text. (Auth)

35-1286
Protection of vegetational cover in permafrost areas (Okhrana rastitel'nogo pokrova v oblasti vechnoi merzloty).
Tyrtikov, A P., *Zhizn' zemli*, 1980, Vol 14, p 14-18, In Russian 9 refs
Cryogenic soils, Plant ecology, Active layer, Permafrost structure, Ground ice, Environmental protection, Permafrost control, Vegetation factors.

35-1287
Chart of soil structure in West Siberian tundra and forest tundra. (Karta struktury pochvennogo pokrova Zapadno-Sibirskoi tundry i lesotundry).
Liverovskaia, I I., *Zhizn' zemli*, 1980, Vol 14, p 18-22, In Russian 8 refs
Tundra, Forest tundra, Landscape types, Cryogenic soils, Soil structure, Mapping, Charts, Vegetation factors, Cryogenic structures, Cryogenic textures.

35-1288
Gullies in permafrost areas. (Ovragi v oblasti vechnoi merzloty).
Shishkina, L P., *Zhizn' zemli*, 1980, Vol 14, p 22-24, In Russian 4 refs
Gullies, Cryogenic soils, Frost shattering, Solifluction, Ground ice, Permafrost structure, Slope stability, Vegetation factors, Soil erosion.

35-1289
Hydrologic studies and land reclamation in Siberia. (Gidrologicheskie issledovaniia i melioratsiia v Sibiri).
Morozov, G A., ed, *Sibirskii nauchno-issledovatel'skii institut gidrotekhniki i melioratsii Nauchnye trudy instituta*, 1977, Vol.3, 86p., In Russian For selected papers see 35-1290 through 35-1294 Refs passim
DLC GB787 G49
River basins, Lakes, Drainage, Ice conditions, Swamps, Land reclamation, Human factors, Climatic factors, Water balance, Water level.

35-1290
Studying the effect of human activities on the hydrologic regime of water bodies in the southern part of Central Siberia. (Issledovanie antropogennogo vliianiia na gidrologicheskii rezhim vodnykh ob"ektov iuzhnoi chasti Srednei Sibiri).
Ershova, L M., Gidrologicheskie issledovaniia i melioratsiia v Sibiri (Hydrologic studies and land reclamation in Siberia) edited by G A Morozov, Krasnoyarsk, 1977, p 3-11, In Russian 6 refs
DLC GB787.G49
River basins, Rivers, Lakes, Water level, Drainage, Human factors, Climatic factors.

35-1291
Influence of hydroelectric plants on water content, ice and thermal regimes of the Yenisey River. (O vliianii GES na vodnost' i ledovotermicheskii rezhim r Eniseia).
Ershova, L M., et al, Gidrologicheskie issledovaniia i melioratsiia v Sibiri (Hydrologic studies and land reclamation in Siberia) edited by G A Morozov, Krasnoyarsk, 1977, p 11-14, In Russian
Influence of hydroelectric plants on water content, ice and thermal regimes of the Yenisey River
DLC GB787 G49
River basins, Hydrology, Ice conditions, Human factors, Electric power, USSR—Yenisey River.

35-1292
Calculating precipitation contributing to spring flooding of rivers in the plains and foothills of the Altai Mountains. (O raschete osadkov, formiruiushchikh vesennee polovod'e rek ravninnykh i predgornykh raionov Altaia).
Klimova, L.A., et al, Gidrologicheskie issledovaniia i melioratsiia v Sibiri (Hydrologic studies and land reclamation in Siberia) edited by G A Morozov, Krasnoyarsk, 1977, p 35-39, In Russian 9 refs
Churakov, D S
DLC GB787.G49
Flood control, Precipitation (meteorology), Snow cover distribution, Snow water equivalent, Runoff, Rivers, USSR—Altai Mountains.

35-1293
Water balance of the Motorskiy swamp. (Ob opyte issledovaniia struktury vodnogo balansa Motorskogo bolotnogo massiva).
Ershova, L M., Gidrologicheskie issledovaniia i melioratsiia v Sibiri (Hydrologic studies and land reclamation in Siberia) edited by G A Morozov, Krasnoyarsk, 1977, p 39-47, In Russian 7 refs
DLC GB787 G49
Swamps, Water balance, Freeze thaw cycles, Drainage, Evaporation, Naleds.

35-1294
Hydrothermal melioration of swamp soils in the forest-steppe zone of the Chulym River Basin. (Osnovnye printsipy vodnykh i teplovykh meliboratsii bolotnykh pochv lesostepnoi zony basseina r Chulym).
Starkov, V M., Gidrologicheskie issledovaniia i melioratsiia v Sibiri (Hydrologic studies and land reclamation in Siberia) edited by G A Morozov, Krasnoyarsk, 1977, p 68-80, In Russian 4 refs
DLC GB787 G49
River basins, Forest land, Swamps, Landscape types, Steppes, Land reclamation, Thermal regime, Seasonal variations, Analysis (mathematics).

35-1295
Mineral pellicles on ice formations in Druzhba Cave. (Mineral'nye plenki na ledianykh obrazovaniiakh peshchery Druzhba).
Savenko, E V., *Peshchery* 1976, Vol.16, p 21-24, In Russian 6 refs
Ice caves, Minerals, Films, Ice stalagmites, Ice stalactites.

35-1296
New data on chemical regime of karst waters in the Kungur Ice Cave. (Novye dannye o khimicheskom rezhime karstovykh vod Kungurskoi ledianoi peshchery).
Ezhov, IU A., et al, *Peshchery*, 1976, Vol 16, p 35-40, In Russian 17 refs
Lukin, A V
Ice caves, Karst, Ground water, Water chemistry, Seasonal variations.

35-1297
Dynamic and morphometric peculiarities of ice cover in the Gulf of Finland. (O dinamicheskikh i morfometricheskikh osobennostiakh ledianogo pokrova v Finskom zalive).
Drabkin, V V., *Leningrad Gosudarstvennyi okeanograficheskii institut Trudy*, 1978, Vol 147, p 137-144, In Russian 1 ref
Sea ice, Drift, Hydraulic structures, Ice loads, Fast ice, Concrete structures, Reinforced concrete.

35-1298
Significance of hydraulic power plant construction in Siberia and the Far East to the national economy. (Narodnokhoziaistvennoe znachenie gidroenergostroitel'stva v raionakh Sibiri i Dal'nego Vostoka).
Lam, I.I., *Energeticheskoe stroitel'stvo*, Nov 1980, No 11, p 63-66 In Russian 7 refs
Cost analysis, Electric power, Hydraulic structures, Dams, Buildings, Equipment.

35-1299
Building river-harbor structures under complicated conditions of West Siberia. (Stroitel'stvo rechnykh portovykh sooruzhenii v slozhnykh usloviakh Zapadnoi Sibiri).
Rikhter, O B., et al, *Transportnoe stroitel'stvo*, Oct 1980, No 10, p 18-20, In Russian
Goncharov, V V., Khaskhachikh, C D., Grishin, G I
Ports, Hydraulic structures, Rivers, Foundations, Piles, Anchors, Moorings, Reinforced concretes, Prefabrication, Concrete structures.

35-1300
Using the horizontal freezing technique in construction of the Helsinki subway. (Primenenie gorizontal'nogo zamorazhivaniia pri sooruzhenii Khel'sinskogo metropolitena).
Lakubovich, D V., *Transportnoe stroitel'stvo*, Oct 1980, No 10, p 55-56, In Russian
Railroads, Tunneling (excavation), Artificial freezing, Frozen rocks, Bearing strength.

35-1301
Using aerial surveys in preparation for pipeline construction. (Ispol'zovanie aerofotos"emki dlia organizatsionnoi podgotovki stroitel'stva truboprovodov).
Kirpov, V G., et al, *Stroitel'stvo truboprovodov*, Oct 1980, No 10, p 20-21, In Russian
Kirnushkin, V N
Pipelines, Site surveys, Aerial surveys, Airborne equipment, Stereophotography, Photogrammetry.

35-1302
Designing construction machines for ground of low bearing strength. (Obespechit' vozmozhnost' raboty mashin na gruntakh s nizkoi nesushchei sposobnost'iu).
Penchuk, V V., *Stroitel'stvo truboprovodov*, Oct 1980, No 10, p 21-23, In Russian
Swamps, Peat, Bearing strength, Construction equipment, Design.

35-1303
Ballasting pipelines in the Far North. (Balastirovka truboprovodov v usloviiakh Krainego Severa).
Blinov, M.A., *Stroitel'stvo truboprovodov*, Oct 1980, No.10, p.23-25. In Russian
Pipelines, Permafrost beneath structures, Swamps, Anchors, Cold weather construction.

35-1304
Pipeline construction and environmental protection. (Okhrana okruzhaiushchei sredy pri sooruzhenii truboprovodov).
Borodavkin, P.P., et al, *Stroitel'stvo truboprovodov*, Nov 1980, No 11, p 14-15. In Russian
Kim, B.I.
Pipe laying, Permafrost beneath structures, Environmental protection, Petroleum industry.

35-1305
Preventing avalanche damage to gas pipelines. (Predotvrashchenie lavinnykh razrushenii gazoprovodov).
Lapin, V.A., *Stroitel'stvo truboprovodov*, Nov 1980, No 11, p 21-22. In Russian 4 refs
Gas pipelines, Avalanches, Pipes, Petroleum industry, Welding, Design.

35-1306
Approximate determination of temperature at the internal surface of a liquefied gas reservoir. (Priblizhennyi metod opredelenia temperatury vnutrennei poverkhnosti rezervuara dlia szhizhennogo gaza).
Bronfenbrener, L.E., *Stroitel'stvo truboprovodov*, Nov. 1980, No 11, p 25-26. In Russian
Gas production, Liquefied gases, Reservoirs, Design, Walls, Surface temperature.

35-1307
Easily assembled modular buildings. (Legkosbornye zdaniia iz skladyvaiushchikhsia iacheek).
Sushn, V.M., et al, *Stroitel'stvo truboprovodov*, Nov 1980, No 11, p 30-31. In Russian
Saikina, N.I.
Modular construction, Prefabrication, Thermal insulation, Construction materials, Buildings, Permafrost beneath structures.

35-1308
Residential complex for 40 outpost workers. (Vakhtennyi zhilol kompleks na 40 chelovek).
Boev, A.A., et al, *Stroitel'stvo truboprovodov*, Nov 1980, No.11, p 31-32. In Russian.
Litvinov, G.A.
Concrete structures, Residential buildings, Modular construction, Foundations, Snow loads, Wind velocity, Design.

35-1309
Polar environmental monitoring: final report.
Nagler, R.G., et al, *System Planning Corporation, Arlington, Va. Report*, Feb. 1979 SPC 392, 94 leaves, 33 refs
Schultheis, A.C.
Research projects, Polar regions, Environments, Measurement.
A review of polar environmental research is made and various options as to if, how it should proceed are presented. Consideration is given to costs of research vs benefits to be reasonably expected from it, who should do the research and with what equipment and vehicles, who are the possible users of research results and can they bear some of the costs, what measurements of environmental aspects are most likely to have a multiplicity of users as opposed to aspects having only a single or limited number of agencies of interest, the nature and extent of international cooperation in polar research efforts. These questions are discussed and the options are stated along with implications of the options.

35-1310
On physical weathering in Taylor Valley, Victoria Land, Antarctica. (Zur physikalischen Verwitterung im Taylor Valley, Victoria-Land, Antarktis).
Miotke, F.-D., *Polarforschung*, 1979, 49(2), p.117-142. In German with English summary. 28 refs.
Cryogenic soils, Soil temperature, Temperature variations, Glacial geology.
Daily temperature variations in the rocks and soils of Taylor Valley were recorded during December and January 1976-77. Two series of measurements were taken, each series being 3 days long. Under clear skies daily temperature ranges of about 35C are possible. Maximum temperatures reach +30C. Within deeper horizons daily maximum and minimum temperatures become less distinctive and show delays of some hours. Permafrost on Nussbaum Riegel (Taylor Valley) rises up to 70-100 cm below the rock surface, and 20-30 cm below the surface of the soil. Depending on the albedo and relief situations permafrost rises in certain place even closer to the surface. Temperature and soil moisture data were used to explain the physical weathering processes of rocks in Taylor Valley. Micro-climate is a dominant factor in frost cracking and temperature-caused tension in the rocks. Temperature differences within the rocks and soils initiate salt weathering processes. High summer temperatures above 0 C allow chemical weathering processes on the rock surface. Very well preserved small-scale features of glacial erosion on the top of Nussbaum Riegel (850 m) in the center of Taylor Valley do not support the theory that this part of the valley has been free of ice for a long time. (Auth.)

35-1311
Hemispheric asymmetries and the role of the Southern Hemisphere in global climate change.
Henderson-Sellers, A., *South African journal of science*, Aug 1980, 76(8), p 373-374, 17 refs
Ice sheets, Albedo, Climatic changes.
Two important results have emerged from the use of this numerical routine for calculation of albedo. Currently the southern hemisphere reflects away a larger proportion of the solar radiation incident upon it than does the northern hemisphere. This is apparently a direct result of the position and glaciated state of Antarctica. More importantly, the southern hemisphere's climatic response to any perturbations is apparently considerably weaker than that of the northern hemisphere. It has previously been suggested that there is a best global configuration for the onset of glacial epochs. We contend, in the light of these results, that it is more pertinent to view the stability of our global climate as a function of hemispheric asymmetry. (Auth.)

35-1312
Biology of the Central Arctic Basin. (Biologiia Tsentral'nogo Arkticheskogo basseina).
Vinogradov, M.E., ed, Moscow, Nauka, 1980, 260p., In Russian. For selected papers see 35-1313 through 35-1323
Mel'nikov, I.A., ed
Drift stations, Cryobiology, Ice surface, Ecosystems, Ice water interface, Ice bottom surface, Bottom topography, Subglacial observations, Ice structure, Arctic Ocean.

35-1313
Studying the pelagic zone ecosystem in the Central Arctic Basin. (Izuchenie ekosistemy pelagiali Tsentral'nogo Arkticheskogo basseina).
Vinogradov, M.E., et al, Biologiia Tsentral'nogo Arkticheskogo basseina (Biology of the Central Arctic Basin) edited by M.E. Vinogradov and I.A. Mel'nikov, Moscow, Nauka, 1980, p 5-14, In Russian 56 refs
Mel'nikov, I.A.
Marine biology, Cryobiology, Ecosystems, Ice cover, Drift stations, Water temperature, Sea ice, Drift, Ice water interface, Research projects, Subglacial observations, Arctic Ocean.

35-1314
Hydrochemical characteristics of surface waters in the Arctic Basin. (Gidrokhimicheskaia kharakteristika poverkhnostnykh vod Arkticheskogo basseina).
Rusanov, V.P., Biologiia Tsentral'nogo Arkticheskogo basseina (Biology of the Central Arctic Basin) edited by M.E. Vinogradov and I.A. Mel'nikov, Moscow, Nauka, 1980, p 15-33, In Russian 13 refs
Surface waters, Water transport, Water temperature, Ice conditions, Water chemistry, Arctic Ocean.

35-1315
Surface morphology of ice in the Arctic Basin. (Morfologiia poverkhnosti l'dov Arkticheskogo basseina).
Grishchenko, V.D., Biologiia Tsentral'nogo Arkticheskogo basseina (Biology of the Central Arctic Basin) edited by M.E. Vinogradov and I.A. Mel'nikov, Moscow, Nauka, 1980, p.33-35, In Russian 20 refs
Sea ice, Ice surface, Ice bottom surface, Subglacial observations, Arctic Ocean.

35-1316
Bibliographic review of cryobiological investigations in the Arctic Ocean. (Kratkii istoricheskii obzor kriobiologicheskikh issledovanii v Severnom Ledovitom okeane).
Mel'nikov, I.A., Biologiia Tsentral'nogo Arkticheskogo basseina (Biology of the Central Arctic Basin) edited by M.E. Vinogradov and I.A. Mel'nikov, Moscow, Nauka, 1980, p.56-61, In Russian 45 refs.
Cryobiology, Bibliographies, Arctic Ocean.

35-1317
Ecosystem of Arctic drift ice. (Ekosistema arkticheskogo dreifuiushchego l'da).
Mel'nikov, I.A., Biologiia Tsentral'nogo Arkticheskogo basseina (Biology of the Central Arctic Basin) edited by M.E. Vinogradov and I.A. Mel'nikov, Moscow, Nauka, 1980, p 61-97, In Russian 64 refs
Sea ice, Drift, Ice surface, Snow cover distribution, Ice cover thickness, Cryobiology, Ecosystems.

35-1318
Cryopelagic fauna of the Central Arctic Basin. (Kriopelagicheskaia fauna Tsentral'nogo Arkticheskogo basseina).
Mel'nikov, I.A., et al, Biologiia Tsentral'nogo Arkticheskogo basseina (Biology of the Central Arctic Basin) edited by M.E. Vinogradov and I.A. Mel'nikov, Moscow, Nauka, 1980, p 97-111, In Russian 32 refs
Kulikov, A.S.
Cryobiology, Sea ice, Algae, Animals, Ice surface, Ice water interface.

35-1319
Ecology of two Gammaridea and Mysidacea species in the cryopelagic biocenoses of the Central Arctic Basin. (K ekologii dvukh vidov gammarid (Amphipoda, Gammaridea) i mizidy (Mysidacea) v kriopelagicheskom biotsenoze Tsentral'nogo Arkticheskogo basseina).
Kulikov, A.S., Biologiia Tsentral'nogo Arkticheskogo basseina (Biology of the Central Arctic Basin) edited by M.E. Vinogradov and I.A. Mel'nikov, Moscow, Nauka, 1980, p 111-118, In Russian 6 refs
Cryobiology, Sea ice, Drift, Ice surface, Ice bottom surface, Animals.

35-1320
Mechanisms of population and the possibility of microflora development in sea ice. (Mekhanizmy zaseleniia morskogo l'da i vozmozhnosti razvitiia v nem mikroflory).
Tsurikov, V.L., Biologiia Tsentral'nogo Arkticheskogo basseina (Biology of the Central Arctic Basin) edited by M.E. Vinogradov and I.A. Mel'nikov, Moscow, Nauka, 1980, p 118-132, In Russian 29 refs
Cryobiology, Sea ice, Microbiology, Algae.

35-1321
Phytoplankton in the area of the drift station "Severnyy polius-22". (Fitoplankton raiona dreifa stantsii "Severnyi polius-22").
Belaeva, T.V., Biologiia Tsentral'nogo Arkticheskogo basseina (Biology of the Central Arctic Basin) edited by M.E. Vinogradov and I.A. Mel'nikov, Moscow, Nauka, 1980, p 133-142, In Russian 11 refs
Drift stations, Cryobiology, Algae, Seasonal Variations, Phytoplankton studies on drift stations.

35-1322
Regularities governing the existence of plankton in the Central Arctic Basin. (O nekotorykh zakonomernostiakh v zhizni planktona Tsentral'nogo Arkticheskogo basseina).
Pavshtiks, E.A., Biologiia Tsentral'nogo Arkticheskogo basseina (Biology of the Central Arctic Basin) edited by M.E. Vinogradov and I.A. Mel'nikov, Moscow, Nauka, 1980, p.142-154, In Russian 40 refs
Drift stations, Cryobiology, Animals, Biomass

35-1323
Closureless catch technique for studying vertical and horizontal distribution of pelagic organisms in the Arctic. (Lovy bez zamykaniia kak metod izucheniia vertikal'nogo i gorizontal'nogo raspredeleniia pelagicheskikh organizmov v Arktike).
Kosobokova, K.N., et al, Biologiia Tsentral'nogo Arkticheskogo basseina (Biology of the Central Arctic Basin) edited by M.E. Vinogradov and I.A. Mel'nikov, Moscow, Nauka, 1980, p 183-195, In Russian 16 refs
Kulikov, A.S., Rudiakov, Iu.A.
Cryobiology, Sampling, Animals, Biomass.

35-1324
Swamp-forest systems of Karelia and their dynamics. (Bolotno-lesnye sistemy Karelii i ikh dinamika).
Ptavchenko, N.I., ed, Leningrad, Nauka, 1980, 184p., In Russian. For selected papers see 35-1325 through 35-1330. Refs passim
Swamps, Peat, Cryogenic soils, Forest land, Paludification, Land reclamation, Environmental impact, Soil microbiology, Litter, Decomposition, Soil chemistry.

35-1325
Forest drainage effect on landscapes of Karelia. (Vliianie osushitel'noi meliroratsii na lesnye landshafty Karelii).
Ptavchenko, N.I., et al, Bolotno-lesnye sistemy Karelii i ikh dinamika (Swamp-forest systems of Karelia and their dynamics) edited by N.I. Ptavchenko, Leningrad, Nauka, 1980, p 52-77, In Russian 38 refs
Kolomytsev, V.A.
Swamps, Forest land, Landscape types, Paludification, Drainage, Environmental impact, Land reclamation.

35-1326
Basic types of paluded spruce forests in Karelia. (Osnovnye tipy zabolochennykh el'nikov Karelii).
Medvedeva, V.M., et al. Bolotno-lesnye sistemy Karelii i ikh dinamika (Swamp-forest systems of Karelia and their dynamics) edited by N.I. P'iavchenko. Leningrad, Nauka, 1980, p.78-99. In Russian. 24 refs.
Kornilova, L.I., Vainblat, V.Z.
Swamps, Forest land, Paludification, Environmental impact, Forest soils, Vegetation.

35-1327
Productivity of North Karelian stands depending on location types. (Produktivnost' drevostoev Severnoi Karelii v zavisimosti ot tipov mestoobitaniia).
Orlov, E.D., Bolotno-lesnye sistemy Karelii i ikh dinamika (Swamp-forest systems of Karelia and their dynamics) edited by N.I. P'iavchenko. Leningrad, Nauka, 1980, p.100-113. In Russian. 5 refs.
Forest soils, Cryogenic soils, Soil formation, Drainage, Vegetation, Topographic effect.

35-1328
Temperature and moisture effects on microflora and nitrogen regime of transition-type peat soils. (Vliianie temperatury i viazhnosti na mikrofloru i azotnyi rezhim torfianoi pochvy perekhodnogo tipa).
Zagural'skaia, L.M., et al. Bolotno-lesnye sistemy Karelii i ikh dinamika (Swamp-forest systems of Karelia and their dynamics) edited by N.I. P'iavchenko. Leningrad, Nauka, 1980, p.114-123. In Russian. 10 refs.
Klein, L.A., Dem'ianova, F.N.
Swamps, Peat, Soil microbiology, Soil temperature, Soil water, Seasonal freeze thaw.

35-1329
Changes in chemical composition of litter decaying in peat soils. (Izmenenie khimicheskogo sostava rastitel'nykh ostatkov pri razlozhenii v torfianoi pochve).
Egorova, R.A., et al. Bolotno-lesnye sistemy Karelii i ikh dinamika (Swamp-forest systems of Karelia and their dynamics) edited by N.I. P'iavchenko. Leningrad, Nauka, 1980, p.135-155. In Russian. 60 refs.
Egorova, N.V.
Swamps, Peat, Soil formation, Nutrient cycle, Organic soils, Litter, Decomposition, Soil chemistry.

35-1330
Epiphyte algae of peat mosses. (Epifitnye vodorosli sfagnovykh mkhov).
Antipina, G.S., Bolotno-lesnye sistemy Karelii i ikh dinamika (Swamp-forest systems of Karelia and their dynamics) edited by N.I. P'iavchenko. Leningrad, Nauka, 1980, p.167-175. In Russian. 23 refs.
Swamps, Peat, Soil microbiology, Algae, Mosses, Lichens.

35-1331
Influence of water runoff redistribution on the natural conditions of Siberia. (Vliianie pereraspredeleniia stoka vod na prirodnye usloviia Sibiri).
Saks, V.N., ed. Novosibirsk, Nauka, 1980, 184p., In Russian. For selected papers see 35-1332 through 35-1342. Refs passim.
Flow control, Water transport, Ice conditions, Swamps, Drainage, Climatic changes, Environmental protection, Lakes, Shore erosion, Cryogenic soils, Soil formation, Rivers, USSR—Siberia.

35-1332
Changes in natural conditions of West Siberia after diverting part of the stream flow to Central Asia. (Izmenenie prirodnykh uslovii v Zapadnoi Sibiri posle perebroski chasti stoka sibirskikh rek v Srednuiu Aziiu).
Shirokov, V.M., Vliianie pereraspredeleniia stoka vod na prirodnye usloviia Sibiri (Influence of water runoff redistribution on the natural conditions of Siberia) edited by V.N. Saks, Novosibirsk, Nauka, 1980, p.22-30. In Russian. Refs. p.28-30.
Rivers, Water transport, Ice conditions, Runoff, Deserts, Climatic changes, Taiga, Stream flow, Flow control, Swamps, Drainage, Cryogenic soils, USSR—Siberia.

35-1333
Geographic studies in West Siberia related to the project of diverting part of the river discharge to the south. (Zadachi geograficheskikh issledovanii v Zapadnoi Sibiri v sviazi s problemoi perebroski chasti stoka sibirskikh rek na iug).
Malik, L.K., Vliianie pereraspredeleniia stoka vod na prirodnye usloviia Sibiri (Influence of water runoff redistribution on the natural conditions of Siberia) edited by V.N. Saks, Novosibirsk, Nauka, 1980, p.47-51. In Russian. 8 refs.
Geography, Rivers, Ice conditions, Flow control, Land reclamation, Swamps, Taiga, Forestry, Forecasts, USSR—Siberia.

35-1334
Redistribution of water resources in the Central Region and studies of natural conditions in northern West Siberia. (Problema pereraspredeleniia vodnykh resursov v Srednnom regione i zadachi izucheniia prirody severnykh raionov Zapadnoi Sibiri).
Bachurin, G.V., Vliianie pereraspredeleniia stoka vod na prirodnye usloviia Sibiri (Influence of water runoff redistribution on the natural conditions of Siberia) edited by V.N. Saks, Novosibirsk, Nauka, 1980, p.52-56. In Russian. 8 refs.
Natural resources, Water, Rivers, Flow control, River basins, Ice conditions, Taiga, Research projects.

35-1335
Development of artificial lake shores in Siberia during their filling and operation. (Razvitie beregov sibirskikh vodokhranilishch v period ikh zapolneniia i ekspluatatsii).
Savkin, V.M., Vliianie pereraspredeleniia stoka vod na prirodnye usloviia Sibiri (Influence of water runoff redistribution on the natural conditions of Siberia) edited by V.N. Saks, Novosibirsk, Nauka, 1980, p.77-84. In Russian. 13 refs.
Lakes, Permafrost beneath lakes, Shore erosion, Seasonal variations.

35-1336
Influx and transfer of water-soluble substances in the forest-steppe zone of West Siberia. (O nekotorykh osobennostiakh postupleniia i perenosa vodorastvorimykh veshchestv v lesostepnoi zone Zapadnoi Sibiri).
Panin, P.S., et al, Vliianie pereraspredeleniia stoka vod na prirodnye usloviia Sibiri (Influence of water runoff redistribution on the natural conditions of Siberia) edited by V.N. Saks, Novosibirsk, Nauka, 1980, p.84-88. In Russian. 3 refs.
Kazantsev, V.A., Melesk, Kh.Kh.
Forest land, Steppes, Cryogenic soils, Soil water migration, Water chemistry, Snow cover effect.

35-1337
New data on the landscape structure of the forest-swamp zone in the Central Region. (Novye materialy o landshaftnoi strukture lesobolotnoi zony Srednnogo regiona).
Mikhallov, N.I., Vliianie pereraspredeleniia stoka vod na prirodnye usloviia Sibiri (Influence of water runoff redistribution on the natural conditions of Siberia) edited by V.N. Saks, Novosibirsk, Nauka, 1980, p.95-101. In Russian. 11 refs.
Taiga, Swamps, Peat, Meadows, Landscape types.

35-1338
Landscape types of the Ob' River floodplain. (Kharakteristika landshaftnykh raionov Obskoi poimy).
Kolomiets, G.E., Vliianie pereraspredeleniia stoka vod na prirodnye usloviia Sibiri (Influence of water runoff redistribution on the natural conditions of Siberia) edited by V.N. Saks, Novosibirsk, Nauka, 1980, p.101-110. In Russian. 20 refs.
Flooding, Plains, Permafrost beneath rivers, Permafrost hydrology, Landscape types, USSR—Ob' River.

35-1339
Studies of the Irtysh floodplain in the area of immediate stream-flow diversion to the south of the Central Region. (Issledovanna poimy Irtysha v zone predpolagaemogo pervoocherednogo izъiatiia stoka dlia perebroski na iug Srednnogo regiona).
Petrov, I.B., Vliianie pereraspredeleniia stoka vod na prirodnye usloviia Sibiri (Influence of water runoff redistribution on the natural conditions of Siberia) edited by V.N. Saks, Novosibirsk, Nauka, 1980, p.110-114. In Russian.
Flow control, Permafrost beneath rivers, Taiga, Soil water migration, Cryogenic soils, Landscape types, Ecosystems, Environmental protection, USSR—Irtysh River.

35-1340
Problems related to paludification of West Siberia. (Problemy Zapadnoi Sibiri v sviazi s ee zabolochennost'iu).
Neishtadt, M.I., Vliianie pereraspredeleniia stoka vod na prirodnye usloviia Sibiri (Influence of water runoff redistribution on the natural conditions of Siberia) edited by V.N. Saks, Novosibirsk, Nauka, 1980, p.121-124. In Russian.
Landscape types, Paludification, Taiga, Forest tundra, Land reclamation, Drainage.

35-1341
Influence of high water stage on shores of deep reservoirs of Siberia (the Krasnoyarsk reservoir taken as an example. (Vliianie forsirovannykh urovnei na berega glubokovodnykh vodokhranilishch Sibiri).
Kuskovskii, V.S., Vliianie pereraspredeleniia stoka vod na prirodnye usloviia Sibiri (Influence of water runoff redistribution on the natural conditions of Siberia) edited by V.N. Saks, Novosibirsk, Nauka, 1980, p.140-143.
Lakes, Permafrost beneath lakes, Water level, Shore erosion, Cryogenic soils, Soil profiles.

35-1342
Peculiarities and conditions of formation of light podsol soils. (Usloviia formirovaniia i nekotorye osobennosti podzolistykh pochv legkogo mekhanicheskogo sostava).
Kul'shin, V.A., Vliianie pereraspredeleniia stoka vod na prirodnye usloviia Sibiri (Influence of water runoff redistribution on the natural conditions of Siberia) edited by V.N. Saks, Novosibirsk, Nauka, 1980, p.176-178. In Russian. 11 refs.
Taiga, Cryogenic soils, Podsol, Soil formation, Soil water, Soil temperature, Snow cover effect, Vegetation factors.

35-1343
Oceanology from space. (Sputnikovaia okeanologiia).
Buĭnitskiĭ, V.Kh., ed. *Leningrad Universitet Uchenye zapiski*, 1980, 403(2), 167p. In Russian. For selected papers see 35-1344 through 35-1347. Refs passim.
Oceans, Subpolar regions, Water temperature, Surface temperature, Infrared reconnaissance, Fronts (meteorology), Spacecraft, Weather observations.

35-1344
New data on circulation of sea water and ice in the Southern Ocean. (Novye dannye o tsirkuliatsii morskikh vod i l'dov v iuzhnopolarnoi oblasti mirovogo okeana).
Buĭnitskiĭ, V.Kh., et al. *Leningrad Universitet. Uchenye zapiski*, 1980, 403(2), p.3-18. In Russian. 15 refs.
Dmitrash, Zh.A., Kuptsova, L.N.
Sea ice, Drift.
From analysis of satellite data, it appears that the stationary nature of cyclones as a characteristic of atmospheric circulation in the southern polar area and the previously accepted charts of geostrophic currents in surface water do not reflect reality. New data on surface water and sea ice movement are presented.

35-1345
Satellite measurements of ocean surface temperature. (K probleme izmerenna temperatury poverkhnosti okeana s ISZ).
Staritsyn, D.K., *Leningrad Universitet Uchenye zapiski*, 1980, 403(2), p.52-61. In Russian. 17 refs.
Oceans, Surface temperature, Remote sensing, Airborne equipment, Spacecraft.

35-1346
Eddy pattern of subarctic front in the northwestern Pacific. (Vikhrevaia struktura subarkticheskogo fronta v severo-zapadnoi chasti Tikhogo okeana).
Bulatov, N.V., *Leningrad. Universitet Uchenye zapiski*, 1980, 403(2), p.61-72. In Russian. 17 refs.
Fronts (meteorology), Subpolar regions, Spacecraft, Weather observations, Pacific Ocean.

35-1347
Conceptual scheme for automatic processing of infrared data from satellites. (Kontseptual'naia skhema avtomaticheskoi obrabotki sputnikovoi IK-informatsii).
Staritsyn, D.K., *Leningrad Universitet Uchenye zapiski*, 1980, 403(2), p.112-118. In Russian. 4 refs.
Infrared reconnaissance, Spacecraft, Oceans, Surface temperature.

35-1348
World of ice: the natural history of the frozen regions. John, B.S., Lo. don, Orbis Publishing, 1979, 120p., 29 refs.
DLC GB581.J63
Sea ice, Ice sheets, Ice, Permafrost, Climate, Ecosystems.

This book, illustrated with dozens of color photographs indexed and provided with a glossary, is an introduction for the general reader to the various forms of ice and to the cold regions of the world. It discusses the reasons for their existence, their size at present and at various times in the past, the ways in which their variations have affected man and continue to do so, the ecosystems which have evolved in the northern and southern hemispheres and the reasons for the differences between them. The ways in which man has adapted to life in cold regions either as a permanent habitat, as did Eskimo and other northern peoples, or as a temporary arena for research, exploration and sport are examined.

35-1349
International geological congress, 26th, 1979. Hydrogeology, engineering geology and construction materials. Reports of soviet geologists. (Mezhdunarodnyi geologicheskii kongress, 26th, 1979. Gidrogeologiia, inzhenernaia geologiia i stroitel'nye materialy. Doklady sovetskikh geologov).
Kulikov, G.V., ed. Moscow, Nauka, 1980. 247p. In Russian. For selected papers see 35-1350 through 35-1354. Refs. passim.
Engineering geology, Permafrost distribution, Frozen rock temperature, Earthquakes, Slope processes, Geocryology, Swamps, Peat, Rheology, Soil stabilization, Clay soils, Lacustrine deposits, Cements, Baykal Amur railroad.

35-1350
Unique engineering-seismological experiment in the Baykal Amur railroad zone. (Unikal'nyi inzhenerno-seismologicheskii eksperiment v ekonomicheskoi zone Baikalo-Amurskoi zheleznoi dorogi).
Solonenko, V.P., International Geological Congress, 26th, 1979. Gidrogeologiia, inzhenernaia geologiia i stroitel'nye materialy. Doklady sovetskikh geologov (Hydrogeology, engineering geology and construction materials. Reports of soviet geologists) edited by G.V. Kulikov, Moscow, Nauka, 1980. p.129-143. In Russian with English summary. 16 refs.
Engineering geology, Earthquakes, Baykal Amur railroad, Permafrost structure, Permafrost distribution, Frozen rock temperature, Slope processes, Geocryology.

35-1351
Structurally unstable soils of different compositions and methods of estimating their engineering and geological properties. (Strukturno-neustoichivye grunty razlichnogo sostava i metody otsenki ikh inzhenerno-geologicheskikh svoistv).
Bocharova, I.S., et al, International Geological Congress, 26th, 1979. Gidrogeologiia, inzhenernaia geologiia i stroitel'nye materialy. Doklady sovetskikh geologov (Hydrogeology, engineering geology and construction materials. Reports of soviet geologists) edited by G.V. Kulikov, Moscow, Nauka, 1980. p.167-175. In Russian with English summary. 4 refs.
Zakharov, I.U.F.
Clay soils, Lacustrine deposits, Swamps, Peat, Physical properties, Soil mechanics.

35-1352
Shear-strength anisotropy and the sustained strength of water saturated clay soils. (Anizotropiia sdvigovoi prochnosti i dlitel'naia prochnost' vodonasyshchennykh glinistykh gruntov).
Kul'chitskii, L.I., International Geological Congress, 26th, 1979. Gidrogeologiia, inzhenernaia geologiia i stroitel'nye materialy. Doklady sovetskikh geologov (Hydrogeology, engineering geology and construction materials. Reports of soviet geologists) edited by G.V. Kulikov, Moscow, Nauka, 1980. p.175-188. In Russian. 15 refs.
Clay soils, Rheology, Shear strength, Settlement (structural).

35-1353
Theoretical aspects of regional landslide forecasts. (Nekotorye teoreticheskie aspekty regional'nykh prognozov opolznei).
Kiunttsel', V.V., et al, International Geological Congress, 26th, 1979. Gidrogeologiia, inzhenernaia geologiia i stroitel'nye materialy. Doklady sovetskikh geologov (Hydrogeology, engineering geology and construction materials. Reports of soviet geologists) edited by G.V. Kulikov, Moscow, Nauka, 1980. p.193-199. In Russian with English summary. 6 refs.
Postoev, G.P., Khositashvili, G.R.
Slope stability, Slope processes, Landslides, Forecasting.

35-1354
Geochemical and physico-chemical aspects of fabric formation in soil stabilization using fly-ashes. (Geokhimicheskie i fiziko-khimicheskie aspekty strukturoobrazovaniia pri ukreplenii dispersnykh gruntov vspol'zovaniem zol teplovykh stantsii).
Voronkevich, S.D., et al, International Geological Congress, 26th, 1979. Gidrogeologiia, inzhenernaia geologiia i stroitel'nye materialy. Doklady sovetskikh geologov (Hydrogeology, engineering geology and construction materials. Reports of soviet geologists) edited by G.V. Kulikov, Moscow, Nauka, 1980. p.204-212. In Russian with English summary.
Evdokimova, L.A., Larionova, N.A., Ogorodnikova, E.N.
Soil stabilization, Cements, Wastes, Ashes.

35-1355 Record deleted.

35-1356
Hydraulic excavators used in construction. (Gidravlicheskie ekskavatory v stroitel'stve).
Kotov, G.A., *Mekhanizatsia stroitel'stva*, Dec. 1980, No.12, p.7-10, In Russian.
Earthwork, Excavation, Frozen ground, Tracked vehicles, Tires, Hammers.

35-1357
New tower crane KB-504. (Novyi bashennyi kran KB-504).
Al'perovich, A.I., et al, *Mekhanizatsia stroitel'stva*, Dec. 1980, No.12, p.12-14, In Russian.
Mochman, L.E.
Cranes (hoists), Design, Construction equipment, Cold weather construction.

35-1358
Possible use of blasting for shaft sinking in artificially frozen rocks. (O vozmozhnosti primeneniia burovzryvnykh rabot pri prokhodke stvolov s zamorazhivaniem gornykh porod).
Klochkov, V.F., et al, *Razrabotka rudnykh mestorozhdenii*, 1980, Vol.30, p.36-38, In Russian.
Shaft sinking, Artificial freezing, Blasting, Mining.

35-1359
Synoptic-statistical approach to forecasting visibility in snowfall. (Sinoptiko-statisticheskii podkhod k prognozu vidimosti v snegopadakh).
Zenkevich, D.I., *Zapadno-sibirskii regional'nyi nauchno-issledovatel'skii gidrometeorologicheskii institut Trudy*, 1980, Vol.47, p.11-17, In Russian. 4 refs.
Snowfall, Visibility, Weather forecasting, Statistical analysis.

35-1360
Statistical model for studying conditions of origin of heavy snowfalls. (Issledovanie uslovii formirovaniia znachitel'nykh snegopadov s pomoshch'iu statisticheskoi modeli).
Prokop'eva, I.P., *Zapadno-sibirskii regional'nyi nauchno-issledovatel'skii gidrometeorologicheskii institut. Trudy*, 1980, Vol.47, p.18-24, In Russian. 10 refs.
Weather forecasting, Snowfall, Mathematical models, Statistical analysis.

35-1361
Frost forecasting for southeastern West Siberia. (K prognozu zamorozkov na iugo-vostoke Zapadnoi Sibiri).
Khramtsova, I.G., *Zapadno-sibirskii regional'nyi nauchno-issledovatel'skii gidrometeorologicheskii institut Trudy*, 1980, Vol.47, p.48-55, In Russian. 4 refs.
Weather forecasting, Frost forecasting, Air temperature, Wind velocity.

35-1362
Weather and flights of airplanes and helicopters. (Pogoda i polety samoletov i vertoletov).
Astapenko, P.D., et al, Leningrad, Gidrometeoizdat, 1980, 280p., In Russian with English table of contents enclosed. 19 refs.
Baranov, A.M., Shvarev, I.M.
Aircraft icing, Helicopters, Ice fog, Fog dispersal, Weather modification, Cloud dissipation, Synoptic meteorology, Weather forecasting.

35-1363
Design values of subzero temperatures for manufacturing, installation and operation of steel structures. (O raschetnoi nizkoi temperature pri izgotovlenii, montazhe i ekspluatatsii stal'nykh konstruktsii).
Sil'vestrov, A.V., et al, *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovania. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura*, 1980, No.9, p.12-15, In Russian. 11 refs.
Moiseichik, E.A.
Steel structures, Cold weather construction, Design, Cold weather operation, Frost resistance.

35-1364
Influence of a complex surfactant admixture on the properties of plasticized portland cement paste, stone and mortar. (Vliianie kompleksnoi dobavki poverkhnostno-aktivnykh veshchestv na svoistva gliezhportlandtsementnogo testa, kamnia i rastvora).
Torka, A.R., et al, *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovania. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura*, 1980, No.9, p.71-75, In Russian. 8 refs.
Inozemtsev, I.U.P.
Concretes, Mortars, Cements, Surfactants, Cement admixtures, Frost resistance, Plastic properties.

35-1365
Performance of thermal deformation compensators during pipeline icing. (Rabota kompensatora teplovykh deformatsii pri oledenenii truboprovoda).
Danilova, N.P., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovania. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura*, 1980, No.9, p.111-115, In Russian. 2 refs.
Pipelines, Icing, Ice loads, Deformation.

35-1366
Study and preservation of water resources (1971-1973). (Izuchenie i okhrana vodnykh resursov (1971-1973 gg.)).
Shablevskaia, V.A., ed. Moscow, Nauka, 1976. 128p. In Russian. For selected papers see 35-1367 through 35-1369.
DLC TC411.I95
Taiga, Swamps, Land reclamation, Drainage, Icebound rivers, Subglacial drainage, Flow rate, Ice jams, Flood control, Analysis (mathematics).

35-1367
Peculiarities of water-heat balance of the Vasyugan River region and ways of changing natural conditions in areas of oligotrophic paludification. (Osobennosti vodno-teplovogo balansa Vasiugan'ia i puti preobrazovania prirody raionov oligotrofnogo zabolachivania).
Kulikov, IU.N., Izuchenie i okhrana vodnykh resursov (1971-1973 gg.) (Study and preservation of water resources (1971-1973)) edited by V.A. Shablevskaia. Moscow, Nauka, 1976. p.6-8. In Russian.
Swamps, Land reclamation, Taiga, Paludification, Drainage, Permafrost depth, USSR—Vasyugan River.

35-1368
Compiling water-surface curves for rivers and waterways in the presence of ice and icy formations. (Postroenie krivykh poverkhnosti vody rek i kanalov pri nalichii l'da i ledovykh obrazovanii).
Orlova, T.B., Izuchenie i okhrana vodnykh resursov (1971-1973 gg.) (Study and preservation of water resources (1971-1973)) edited by V.A. Shablevskaia. Moscow, Nauka, 1976. p.87-89. In Russian.
Icebound rivers, Subglacial drainage, Flow rate, Ice jams, Flood control, Analysis (mathematics).

35-1369
Calculating subglacial passage capacity of rivers and waterways. (Raschet propusknoi sposobnosti rusel rek i kanalov pod ledianym pokrovom).
Marusenko, IA.I., Izuchenie i okhrana vodnykh resursov (1971-1973 gg.) (Study and preservation of water resources (1971-1973)) edited by V.A. Shablevskaia. Moscow, Nauka, 1976. p.89-91. In Russian.
Icebound rivers, Subglacial drainage, Analysis (mathematics).

35-1370
Proton mobility in ice.
Kunst, M., et al, *Nature*, Dec. 4, 1980, 288(5790), p.465-467, 35 refs.
Warman, J.M.
Ice composition, Proton transport, Electrical resistivity, Hydrogen bonds.

35-1371
Sintering with a weak temperature gradient. (Etude du frittage en présence d'un faible gradient de temperature).
Marbouty, D., et al, International Meeting on Alpine Meteorology, 16th, Aix-Les-Baines, France, Sep. 22-27, 1980, Société météorologique de France, 1980, p.291-295, In French with English summary. 3 refs.
Martin, A.
Ice sintering, Snow crystals, Cohesion, Temperature gradients, Shear stress.

35-1372
Plant climate in shore forests north of Lake Baykal. (Fitoklimat pribrezhnykh lesov Severnogo Baikala).
Vykhristiuk, M M., Novosibirsk, Nauka, 1980, 215p., In Russian with English table of contents enclosed Refs.153-161
Taiga, Landscape types, Cryogenic soils, Vegetation, Microclimatology, Plant ecology, Plant physiology, Forest canopy, Heat balance, Radiation balance, Soil temperature, Snow cover effect, USSR—Baykal Lake.

35-1373
Conference of young scientists, 3rd, Krasnoyarsk, 1971. Studies of the nature of Siberian forests. (Izuchenie prirody lesov Sibiri).
Konferentsiia molodykh uchenykh, 3rd, Krasnoyarsk, 1971, Krasnoyarsk, 1972, 325p., In Russian. For selected papers see 35-1374 through 35-1382 Refs passim
Voronkov, P T., ed
DLC SD231.I9
Taiga, Biomass, Cryogenic soils, Mountain soils, Slope orientation, Swamps, Peat, Soil formation, Soil microbiology, Litter, Forest fires.

35-1374
Biomass dynamics in green-moss fir forests of different age. (Vozrastnaia dinamika fitomassy v pikhtarnikakh zelenomoshnykh).
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DLC SD231.I9
Taiga, Cryogenic soils, Biomass, Mountain soils, Slope orientation.

35-1375
Biologic cycle in bilberry-peat moss pine forests. (Nekotorye itogi izuchenna biologicheskogo krugovorota v sosnniake chernichno-sfagnovom).
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DLC SD231.I9
Taiga, Biomass, Cryogenic soils, Nutrient cycle, Swamps, Peat, Mosses.

35-1376
Microflora biomass in pine biocenoses. (Biomassa mikroflory sosnovogo biotsenoza).
Aiunts, K.M., Konferentsiia molodykh uchenykh, 3rd, Krasnoyarsk 1971 Izuchenie prirody lesov Sibiri (Conference of young scientists, 3rd, Krasnoyarsk, 1971 Studies of the nature of Siberian forests), Krasnoyarsk, 1972, p 177-180, In Russian.
DLC SD231.I9
Taiga, Cryogenic soils, Soil microbiology, Biomass.

35-1377
Biology of antagonistic microbes in peat-bog soils of Siberia. (Biologiia mikrobov-antagonistov torfianobolotnykh pochv Sibiri).
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DLC SD231.I9
Swamps, Peat, Soil formation, Cryogenic soils, Soil microbiology.

35-1378
Seasonal variations of soil properties in pine forests of different age. (Sezonnaia izmenchivost' svoistv pochv v sosniakakh raznogo vozrasta).
Sorokina, O A., Konferentsiia molodykh uchenykh, 3rd, Krasnoyarsk 1971 Izuchenie prirody lesov Sibiri (Conference of young scientists, 3rd, Krasnoyarsk, 1971 Studies of the nature of Siberian forests), Krasnoyarsk, 1972, p 190-195, In Russian
DLC SD231.I9
Taiga, Cryogenic soils, Soil formation, Soil chemistry, Physical properties, Seasonal variations, Soil microbiology.

35-1379
Thermal interaction of radiation with combustible forest materials. (K voprosu o teplovom vzaimodeistvii izluchenna s lesnym goriuchim materialom).
Konev, V A., Konferentsiia molodykh uchenykh, 3rd, Krasnoyarsk 1971 Izuchenie prirody lesov Sibiri (Conference of young scientists, 3rd, Krasnoyarsk, 1971 Studies of the nature of Siberian forests), Krasnoyarsk, 1972, p 230-235, In Russian
DLC SD231.I9
Taiga, Litter, Solar radiation, Forest fires.

35-1380
Influence of biochemical composition and oxygen concentration in the environment on the burning rate of coniferous litter. (O vliianii biokhimicheskogo sostava i kontsentratsii kisloroda v okruzhaiushchei srede na skorost' gorenna khvoi).
Sukhinin, A I., Konferentsiia molodykh uchenykh, 3rd, Krasnoyarsk 1971 Izuchenie prirody lesov Sibiri (Conference of young scientists, 3rd, Krasnoyarsk, 1971 Studies of the nature of Siberian forests), Krasnoyarsk, 1972, p 236-242, In Russian
DLC SD231.I9
Taiga, Litter, Forest fires.

35-1381
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Kishkhov, E K., Konferentsiia molodykh uchenykh, 3rd, Krasnoyarsk 1971. Izuchenie prirody lesov Sibiri (Conference of young scientists, 3rd, Krasnoyarsk, 1971 Studies of the nature of Siberian forests), Krasnoyarsk, 1972, p 242-248, In Russian
DLC SD231.I9
Taiga, Litter, Forest fires, Models.

35-1382
Using the phenointegral method in studying bioclimatic conditions of dark conifer mountain taiga. (Ob ispol'zovanii fenointegral'nogo metoda v izuchenii bioklimaticheskikh uslovii gornoi temnokhvoinoi taigi).
Molokov, V A., Konferentsiia molodykh uchenykh, 3rd, Krasnoyarsk 1971 Izuchenie prirody lesov Sibiri (Conference of young scientists, 3rd, Krasnoyarsk, 1971 Studies of the nature of Siberian forests), Krasnoyarsk, 1972, p 268-275, In Russian. 13 refs
DLC SD231.I9
Taiga, Landscape types, Cryogenic soils, Mountain soils, Slope orientation, Microclimatology, Soil microbiology, Mosses.

35-1383
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American Society of Naval Engineers ASNE Day. *Naval engineers journal.* Aug /Oct. 1980, 92(4/5), p 70-83, 100-110, Basic paper being commented on by L Vassilopoulos and F.M. Hamilton is "Longitudinal stiffness analyses for the propulsion shafting systems of the POLAR class icebreakers," Naval engineers journal 92(2):179ff, Apr 1980, see 35-826
Icebreakers, Propellers, Vibration.

35-1384
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Khabibullin, I I.
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35-1385
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Timofeev, IU L., et al, *Soil mechanics and foundation engineering*, May-June 1980, 17(3), p 107-110, Translated from Osnovanna, fundamenty i mekhanika gruntov. 4 refs.
Vorontsova, G.M., Lekumovich, G.S., Luchkovskii, I.IA.
Buildings, Foundations, Piles, Concrete structures, Reinforced concretes, Loams, Settlement (structural).

35-1386
Space distribution of mesoscale subsurface currents in the Amerasian subbasin of the Arctic Ocean. (O prostranstvennom raspre lelenii mezomasshtabnykh podpoverkhnostnykh techenii v Amerazuskom subbasseine Severnogo Ledovitogo okeana).
Belikov, I. N., et al, *Akademiia nauk SSSR Doklady*, 1980, 254(3), p 752-754, In Russian. 13 refs
Volkov, V A.
Ocean currents, Water transport, Charts, Oceanography, Arctic Ocean.

35-1387
Slow waves at the surface of the Arctic Ocean. (Medlennye volny na poverkhnosti Severnogo Ledovitogo okeana).
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Bogorodskii, V V., Gavrilo, V P., Smirnov, V N
Water waves, Wave propagation, Ocean currents, Water transport, Heat transfer, Air water interactions, Drift stations, Meteorology, Ice conditions, Ice navigation, Arctic Ocean.

35-1388
Investigation of organic additive aggregation processes in frozen water-salt systems. (Issledovanie protsessa agregatsii organicheskoi dobavki v zamorozhennykh vodno-solevykh sistemakh).
Kovalev, O.I., et al, *Akademna nauk SSR Doklady*, 1980, 255(2), p 377-379, In Russian 6 refs
Mikhalev, O I., Tal'roze, V L., Trofimov, V I.
Salt water, Admixtures, Freezing, Ice composition, Cooling rate, Ice structure, Physical properties.

35-1389
Differentiated evaluation of frozen ground strength. (Differentsirovannaia otsenka prochnosti merzlykh gruntov).
Vrachev, V V., et al, *Moscow Universitet Vestnik Seria 4 Geologna*, Sep-Oct 1980, No 5, p 73-80, In Russian 10 refs
Dats'ko, P S
Frozen fines, Bearing strength, Frost penetration, Phase transformations, Soil water migration, Clay soils.

35-1390
Studies of forest soils and vegetation in the northeastern USSR. (Issledovanna rastitel'nosti i pochv v lesakh Severo-Vostoka SSSR).
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DLC SD232.S49185
Forest soils, Taiga, Forest tundra, Forest fires, Cryogenic soils, Soil erosion, Revegetation, Permafrost depth, Soil temperature, Active layer, Soil water migration, Permafrost hydrology.

35-1391
Introduction into the classification of central taiga forests in Yakutia. (Vvedenie v tipologiu srednetaezhnykh lesov Iakutii).
Shcherbakov, I P., Issledovanna rastitel'nosti i pochv v lesakh Severo-Vostoka SSSR (Studies of forest soils and vegetation in the northeastern USSR) edited by I P Shcherbakov, Yakutsk, Yakutskoe knizhnoe izd-vo, 1971, p 3-33, in Russian 55 refs.
DLC SD232.S49185
Forest land, Taiga, Landscape types, Vegetation, Classifications.

35-1392
Revegetation of different kinds of felled areas in alder-cranberry-larch forests of southwestern Yakutia. (Zarastanie raznorezhimnykh vyrubok v listvitage ol'khovnikovo-brusnichnom na iugo-zapade Iakutii).
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DLC SD232.S49185
Taiga, Revegetation, Cryogenic soils, Soil erosion, Mosses, Grasses, Felled areas.

35-1393
Revegetation of larch (*Larix dahurica* Turcz) in the Zhigansk regions of the Yakut ASSR. (Vozobnovlenie listvennitsy daurskoi v Zhigianskom raione IAASSR).
Chugunova, R V., Issledovanna rastitel'nosti i pochv v lesakh Severo-Vostoka SSSR (Studies of forest soils and vegetation in the northeastern USSR) edited by I P Shcherbakov, Yakutsk, Yakutskoe knizhnoe izd-vo, 1971, p.76-82, In Russian 12 refs.
DLC SD232.S49185
Taiga, Forest canopy, Cryogenic soils, Revegetation, Mosses, Grasses.

35-1394
Reserves of combustible materials in the litter, vegetational cover and stand of young larch forests on the Okhotsk shores and in the upper course of the Kolyma River. [Zapas goriuchikh materialov v opade, napochvennom pokrove i drevostoe listvennichnykh molodniakov Okhotskogo poberezh'ia i verkhnego techeniia reki Kolymy].
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DLC SD232 S49I85
Shores, Taiga, Forest fires, Litter, Soil erosion, Cryogenic soils, Tundra, Vegetation, Okhotsk Sea.

35-1395
Data on variations in the amount of litter in larch and pine forests of the Lena River area in Yakutia. [Nekoto.ye dannye o dinamike opada v listvennichnykh i sosnovykh lesakh Lenskogo raiona IAASSR].
Karpel', B A , Issledovaniia rastitel'nosti i pochv v lesakh Severo-Vostoka SSSR (Studies of forest soils and vegetation in the northeastern USSR) edited by I P Shcherbakov, Yakutsk, Yakutskoe knizhnoe izd'vo, 1971, p.94-102, In Russian. 4 refs
DLC SD232.S49I85
Taiga, Cryogenic soils, Biomass, Litter, Nutrient cycle.

35-1396
Temperature and water regimes of forest soils in Yakutia. [Temperaturnyi i vodnyi rezhimy lesnykh pochv IAkutii].
Savvinov, D D , Issledovaniia rastitel'nosti i pochv v lesakh Severo-Vostoka SSSR (Studies of forest soils and vegetation in the northeastern USSR) edited by I.P. Shcherbakov, Yakutsk, Yakutskoe knizhnoe izd-'vo, 1971, p.118-175, In Russian. Refs. p 173-175
DLC SD232.S49I85
Forest soils, Cryogenic soils, Permafrost depth, Soil temperature, Active layer, Soil water migration, Permafrost hydrology, Soil formation, USSR—Yakutia.

35-1397
Soviet construction under difficult climatic conditions.
Assur, A , MP 1345, Soviet housing and urban design Edited by S A Grant, U.S Dept of Housing and Urban Development, Sep. 1980, p.47-53
Cold weather construction, Permafrost beneath structures, Prefabrication, Standards, Houses.

35-1398
Snow accumulation and ablation: a stochastic model.
Cary, L.E , et al, Modeling hydrological processes International Hydrology Symposium, 3rd, Colorado State University, 1977, Proceedings, edited by H.J. Morel-Seytoux, J.D Salas, T.G. Sanders, and R E. Smith, Fort Collins, Colorado, Water Resources Publications, 1979, p 32-43, 12 refs.
Fogel, M.M., Duckstein, L.
DLC GB656 2M33157 1977
Snow accumulation, Ablation, Mathematical models, Snow water equivalent.

35-1399
Major physiographic features of the Arctic and Southern Oceans. [Glavnye fiziko-geograficheskie osobennosti Severnogo Ledovitogo i IUzhnogo okeanov].
Treshnikov, A.F , et al, Teoreticheskie voprosy fizicheskoi i ekonomicheskoi geografii Mirovogo okeana) Theoretical questions of physical and economic geography of the world ocean) edited by S.S Sal'nikov, Leningrad, Geograficheskoe obshchestvo, 1979, p 37-54, In Russian 6 refs
Korotkevich, E.S.
Sea ice, Hydrology, Oceans, Oceanography.
Basic features of the hydrological regime of the Arctic and Southern Oceans water circulation patterns, temperature distribution and salinity patterns, and sea ice distribution and seasonal variation are discussed Serious attention is devoted to the question of formation of coastal ice in the Southern Ocean in connection with ice cover changes The biological characteristics of polar oceans are examined in detail, a comparative analysis is done for Arctic and Antarctic oceans and the reasons for the high productivity of the Southern Ocean considered

35-1400
Antarctic Treaty exchange information: particulars for the Australian National Antarctic Research Expeditions (ANARE) for 1980-81.
Australia Department of Science and the Environment. Antarctic Division, [Melbourne], Nov 15, 1980, 62p
Stations, Equipment, Shelters, Research projects, Expeditions, Aircraft landing areas, Transportation, Telecommunication, Radio communication, Antarctica.
This report presented in concise, non-narrative form information on the following aspects of ANARE transport to and from Antarctica, itinerary of expeditions, stations and camps, personnel, armaments scientific programs and equipment transport and communication equipment emergency facilities, shelters, and number of animals killed or captured

35-1401
Biogeocenoses of the Taymyr Tundra. [Biogeotsenozy Taimyrskoi tundry].
Tomilin, B.A., ed, Leningrad, Nauka, 1980, 256p., In Russian. For selected articles see 35-1402 through 35-1412. Refs passim
Tundra, Landscape types, Cryogenic soils, Vegetation, Biomass, Ecosystems, Plant ecology, Plant physiology, Research projects, Bibliographies.

35-1402
***Tareia* research station of the Botanical institute, Academy of Sciences USSR: results of scientific research.** [Statsionar "Tareia" Botanicheskogo instituta im. V.L Komarova AN SSSR· rezul'taty nauchno-issledovatel'skikh rabot].
Tomilin, B A , Biogeotsenozy Taimyrskoi tundry (Biogeocenoses of the Taymyr Tundra) edited by B A Tomilin, Leningrad, Nauka, 1980, p 3-25 , In Russian. Refs. p 12-25.
Bibliographies, Research projects, Tundra, Landscape types, Cryogenic soils, Vegetation, Ecosystems, Biomass, Plant physiology, Plant ecology.

35-1403
Classification of tundra and forest tundra soils in Taymyr. [Klassifikatsiia pochv Taimyrskoi tundry i lesotundry].
Ignatenko, I.V., Biogeotsenozy Taimyrskoi tundry (Biogeocenoses of the Taymyr Tundra) edited by B.A Tomilin, Leningrad, Nauka, 1980, p 26-46, In Russian Refs. p.41-46.
Forest tundra, Cryogenic soils, Classifications, Tundra, Vegetation, Paludification, Patterned ground, USSR—Taymyr Peninsula.

35-1404
Swamps of the Taymyr biogeocenologic research station (Tareya village) and its surroundings. [Bolota Taimyrskogo biogeotsenologicheskogo statsionara (*pos* Tareia) i *ego okrestnostei*].
Boch, M.S , Biogeotsenozy Taimyrskoi tundry (Biogeocenoses of the Taymyr Tundra) edited by B A. Tomilin, Leningrad, Nauka, 1980, p 47-58, In Russian Refs p 55-58
Forest tundra, Research projects, Swamps, Tundra, Cryogenic soils, Vegetation, Ecosystems, Biomass, USSR—Taymyr Peninsula.

35-1405
Seasonal development of plants and plant communities at the Taymyr biogeocenologic station. [Sezonnoe razvitie rastenii i rastitel'nykh soobshchestv Taimyrskogo biogeotsenologicheskogo statsionara].
Deeva, N.M., Biogeotsenozy Taimyrskoi tundry (Biogeocenoses of the Taymyr Tundra) edited by B.A Tomilin, Leningrad, Nauka, 1980, p 59-96, In Russian. Refs. p.93-96.
Tundra, Landscape types, Cryogenic soils, Soil temperature, Vegetation, Thermal regime, Soil air interface, Heat transfer, Biomass, Seasonal variations, Topographic effects, Plant physiology.

35-1406
Relation of linear offshoot increments and leaves of Arctic plants to the course of temperature and rhythm of phenologic development. [O sviazi lineinykh prirostov pobegov i list'ev Arkticheskikh rastenii s khodom temperatury i ritmom fenologicheskogo razvitiia].
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Tundra, Landscape types, Cryogenic soils, Thermal regime, Plant ecology, Growth.

35-1407
Pollination of tundra plants (West Taymyr). [K voprosu ob opylenii rastenii tundrovoi zony (Zapadnyi taimyr)].
Khodachek, E A , Biogeotsenozy Taimyrskoi tundry (Biogeocenoses of the Taymyr Tundra) edited by B A Tomilin, Leningrad, Nauka, 1980, p 105-117, In Russian Refs. 114-117
Tundra, Cryogenic soils, Vegetation, Plant physiology, Pollen, Plant ecology, Ecosystems.

35-1408
Periodicity in the fructification of West Taymyr plants. [O periodichnosti plodonoshenia rastenii na Zapadnom Taimyre].
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Tundra, Vegetation, Plant ecology, Ecosystems, Plant physiology, Cryogenic soils, USSR—Taymyr Peninsula.

35-1409
Ecologic and biologic characteristics of species of the genus *Eriophorum* L. in West Taymyr. [K ekologo-biologicheskoi kharakteristike vidov roda *Eriophorum* L na Zapadnom Taimyre].
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Tundra, Plant ecology, Ecosystems, Biomass, Landscape types, Cryogenic soils, Topographic effects, USSR—Taymyr Peninsula.

35-1410
Potential photosynthesis of West Taymyr plants. [Potentsial'nyi fotosintez rastenii Zapadnogo Taimyra].
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Deeva, N.M., Gazen, T K., Zalenskii, O V
Tundra, Landscape types, Plant ecology, Plant physiology, Photosynthesis.

35-1411
Fungi as components of tundra biogeocenoses. [Griby-komponenty tundrovykh biogeotsenozov].
Stepanova, I V., et al, Biogeotsenozy Taimyrskoi tundry (Biogeocenoses of the Taymyr Tundra) edited by B A. Tomilin, Leningrad, Nauka, 1980, p 165-192, In Russian Refs. p 187-192
Tomilin, B.A.
Tundra, Landscape types, Cryogenic soils, Vegetation, Fungi.

35-1412
Rate of organic matter decomposition in Taymyr tundras. [Skorost' razlozheniia organicheskogo veshchestva v tundrakh p-va Taimyr].
Parinkina, O.M , Biogeotsenozy Taimyrskoi tundry (Biogeocenoses of the Taymyr Tundra) edited by B.A Tomilin, Leningrad, Nauka, 1980, p 234-248, In Russian. Refs. p.246-248
Tundra, Cryogenic soils, Vegetation, Biomass, Decomposition, Nutrient cycle, Landscape types, Plant ecology.

35-1413
Coastal ice sheet in Enderby Land, Antarctica: relief, movement and mass balance. [Die küstennahe Eisdecke des westlichen Enderby-Landes, Antarktis. Beiträge zu Relief, Bewegung und Massenhaushalt].
Meier, S , Gotha, H Haack, 1977, 104p , In German Refs. p.78-80.
DLC GB2798.E53M44
Glacier surveys, Glacier mass balance, Measurement, Antarctica—Hays Glacier, Antarctica—Campbell Glacier.
A detailed discussion is presented of measurements made by an East German glaciological team on two outlet glaciers and the intervening ice cap near Molodezhnaya Station in 1972 General descriptions are given of the locales of each area of interest along with data on temperature accretion, ablation mass balance, movement, sub glacial relief, size and form of Hays and Campbell Glaciers and the ice sheet about the Molodezhnaya region Numerous tables, charts, and graphs present the measurements Symbols are defined and mathematical methods explained

35-1414
Some observations of snowfall and meteorological conditions in Arctic Canada.
Magono, C , et al, *Monthly weather review*, Oct 1980, 108(10), p 1656-1664, 10 refs
Kikuchi, K
Ice crystal structure, Snow crystal structure, Temperature inversions, Cloud physics, Weather observations.

35-1415
Forty million years of ice at the south pole. {Vierzig millionen Jahre Eis am Südpol},
Meier, S., *Wissenschaft und Fortschritt*. 1980. 30(9,-10), p.348-351, 373-376. In German
Ice sheets, Paleoclimatology, Ice age theory.
Antarctica's glacial history is reviewed as an aid in explaining current research results Significant geological events in the Tertiary, such as polar wandering of the antarctic plate and orogeny, initiated the antarctic freeze-up This initiation of the continental ice sheet accompanied by global cooling and falling sea levels is described, and comments on modern research methods are made Climatic history of ancient epochs is recorded in the antarctic ice sheet Its variations are described and discussed in terms of ice age rhythms and hypotheses and sea levels as well as raising and lowering of land masses

35-1416
Aids for improving vision in white-out.
Schlichting, C.L., et al, *Naval Submarine Medical Research Laboratory Report*. Aug. 1980, NSMRL-937, 23p, ADA-088 726. 32 refs
Luria, S.M., Kinney, J.A., Kindness, S W
Whiteout, Visibility, Countermeasures.

35-1417
Recent soil processes and fertility of Karelian soils. {Sovremennye pochvennye protsessy i plodorodie pochv Karelii},
P'iavchenko, N.I., ed, Petrozavodsk, 1979, 174p., In Russian. For selected papers see 35-1418 and 35-1419. Refs. passim.
Zavarzin, V.M., ed, Strelkova, A A., ed
Cryogenic soils, Forest soils, Soil water migration, Solutions, Soil formation, Moraines, Sands, Loams, Soil composition, Microelement content, Vegetation factors, USSR—Karelia.

35-1418
Migration of water-soluble substances in podsolized sandy and sandy- loam soils. {Protsessy migratsii vodnorastvorimykh veshchestv v podzolistykh peschanykh i supeschanykh pochvakh},
Strelkova, A.A., Sovremennye pochvennye protsessy i plodorodie pochv Karelii (Recent soil processes and fertility of Karelia soils) edited by N I P'iavchenko, V.M. Zavarzin and A A. Strelkova, Petrozavodsk, 1979, p.3-22, In Russian. 28 refs.
Soil water migration, Solutions, Podsol, Loams, Moraines, Soil chemistry, Nutrient cycle, Vegetation factors, Forest soils.

35-1419
Microelement content in forest and cultivated loam soils of Karelia. {Soderzhanie mikroelementov v lesnykh i osvoennykh suglinistykh pochvakh Karelii},
Perevozchikova, E M., et al, Sovremennye pochvennye protsessy i plodorodie pochv Karelii (Recent soil processes and fertility of Karelia soils) edited by N I P'iavchenko, V M Zavarzin, and A A Strelkova, Petrozavodsk, 1979, p 149-168, In Russian 5 refs
Krokhina, A M
Cryogenic soils, Forest soils, Soil formation, Moraines, Loams, Soil composition, Soil chemistry, Microelement content, USSR—Karelia.

35-1420
Recent and ancient glaciation of plains and mountainous regions of the USSR. {Sovremennoe i drevnee oledenenie ravninnykh i gornykh raionov SSSR},
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Kaplianskaia, F.A., ed.
Pleistocene, Sediments, Glacier ice, Ground ice, Ice structure, Ice crystal structure, Ice veins, Thermokarst, Buried ice.

35-1421
Surface and underground glaciation of the West Siberian Plain during the Pleistocene. {Nazemnoe i podzemnoe oledenenie Zapadno-Sibirskoĭ ravniny v pleĭstotsene},
Kaplianskaia, F.A., et al, Sovremennoe i drevnee oledenenie ravninnykh i gornykh raionov SSSR (Recent and ancient glaciation of plains and mountainous regions of the USSR) edited by V.A. Zubakov and F.A Kaplianskaia, Leningrad, 1978, p.18-28, In Russian. 15 refs.
Tarnogradskiĭ, V.D.
Glaciation, Permafrost distribution, Glacier ice, Ground ice, Thermokarst, Ice veins, Frozen rock temperature.

35-1422
Buried glacier ice in the north of West Siberia. {Pogrebennye ostatki gletchernogo l'da na severe Zapadnoĭ Sibiri},
Solomatin, V I., et al, Sovremennoe i drevnee oledenenie ravninnykh i gornykh raionov SSSR (Recent and ancient glaciation of plains and mountainous regions of the USSR) edited by V.A. Zubakov and F.A Kaplianskaia, Leningrad, 1978, p.66-77, In Russian 12 refs.
Badu, IU B.
Pleistocene, Sediments, Ground ice, Glacier ice, Ice structure, Ice crystal structure.

35-1423
Prospects of rational utilization of natural resources. {Perspektivy ratsional'nogo ispol'zovaniia prirodnykh resursov},
Vodovozov, S A., ed, Moscow, 1980, 113p., In Russian For selected papers see 35-1424 and 35-1425 Refs passim
Chupakhin, V.M., ed.
Forest tundra, Forest land, Environmental protection, Cryogenic soils, Human factors, Tundra, Land reclamation.

35-1424
Prospects of utilization and preservation of land resources in the non-chernozem zone of the RSFSR. {O perspektivakh ispol'zovaniia i okhrany zemel'nykh resursov nechernozemnoĭ zony RSFSR},
Mikhailov, I.S., et al, Perspektivy ratsional'nogo ispol'zovaniia prirodnykh resursov (Prospects of rational utilization of natural resources) edited by S A Vodovozov and V.M. Chupakhin, Moscow, 1980, p 35-41, In Russian.
Dolginskaia, T.M
Forest tundra, Forest land, Cryogenic soils, Environmental protection, Human factors, Land reclamation, Tundra.

35-1425
Environmental protection in the Far North. {Perspektivy okhrany i formirovaniia okruzhaiushchei sredy na Kraĭnem Severe},
Freĭdin, I L., Perspektivy ratsional'nogo ispol'zovaniia prirodnykh resursov (Prospects of rational utilization of natural resources) edited by S.A. Vodovozov and V M Chupakhin, Moscow, 1980, p.65-72, In Russian
Environmental protection, Tundra, Human factors, Cryogenic soils, Permafrost depth, Economic development.

35-1426
Larch forests in the northern part of the West Siberian Plain. {Listvennichnye lesa severa Zapadno-Sibirskoĭ ravniny},
Il'ina, I.S., Sovremennye problemy biogeografii (Present problems of biogeography) edited by M D. Skarlygina-Ufimtseva, Leningrad, Izd-vo Leningradskogo universiteta, 1980, p 28-44, In Russian 21 refs
Tundra, Forest tundra, Taiga, Landscape types, Cryogenic soils, Vegetation, Plant ecology, Ecosystems, Paludification, Permafrost distribution.

35-1427
Redistribution of water resources among river basins and its effect on natural conditions and the national economy. {Mezhbasseĭnovoe pereraspredelenie vodnykh resursov i ego vliianie na prirodnye usloviia i narodnoe khoziaĭstvo},
Sokolov, A A., ed, Leningrad, 1980, 164p., In Russian. For selected papers see 35-1428 through 35-1432 Refs. passim.
River basins, Drainage, Flow control, Climatic changes, Landscape types, Thermal regime, Tundra, Taiga, Swamps, Deltas, Ice conditions, Forecasting, Arctic Ocean.

35-1428
Redistribution and preservation of water resources in Siberia. {Voprosy territorial'nogo pereraspredeleniia i okhrany vodnykh resursov Sibiri},
Saks, V N., et al, Mezhbasseĭnovoe pereraspredelenie vodnykh resursov i ego vliianie na prirodnye usloviia i narodnoe khoziaĭstvo (Redistribution of water resources among river basins and its effect on natural conditions and the national economy) edited by A A. Sokolov, Leningrad, 1980, p 76-81, In Russian 8 refs.
Vostriakova, N.V., Kuskovskiĭ, V.S., Savkin, V.M.
Rivers, Flow control, Water reserves, Climatic changes, Swamps, Landscape types, Permafrost hydrology.

35-1429
Forecasting changes in landscapes, bio- and medico-geographic conditions due to changing river courses in the central region of the USSR. {Prognoz ozhidaemykh izmeneniĭ landshaftov biogeograficheskikh i mediko-geograficheskikh uslovii pri perebroske rechnogo stoka v Srednnom regione SSSR},
Voronov, A G., et al, Mezhbasseĭnovoe pereraspredelenie vodnykh resursov i ego vliianie na prirodnye usloviia i narodnoe khoziaĭstvo (Redistribution of water resources among river basins and its effect on natural conditions and the national economy) edited by A.A. Sokolov, Leningrad, 1980, p.82-89, In Russian
Mikhaĭlov, N I., Nikolaev, V A., Timashev, I E
Rivers, Flow control, Landscape types, Tundra, Taiga, Swamps, Deserts, Climatic changes.

35-1430
Possible changes in swamp landscapes of West Siberia due to changing the course of rivers. {Vozmozhnye izmeneniia bolotnykh landshaftov Zapadnoĭ Sibiri pri perebroskakh stoka},
Ivanov, K.E., et al, Mezhbasseĭnovoe pereraspredelenie vodnykh resursov i ego vliianie na prirodnye usloviia i narodnoe khoziaĭstvo (Redistribution of water resources among river basins and its effect on natural conditions and the national economy) edited by A A Sokolov, Leningrad, 1980, p 90-105, In Russian 12 refs
Novikov, S M
Rivers, Flow control, Swamps, Hydrothermal processes, Peat, Subpolar regions, Soil formation, Paludification, Permafrost depth.

35-1431
Estuarine areas of Arctic rivers and the diversion of stream flow. {Ust'evye oblasti rek Arkticheskoĭ zony i perebroska stoka},
Ivanov, V V., Mezhbasseĭnovoe pereraspredelenie vodnykh resursov i ego vliianie na prirodnye usloviia i narodnoe khoziaĭstvo (Redistribution of water resources among river basins and its effect on natural conditions and the national economy) edited by A A Sokolov, Leningrad, 1980, p 106-123, In Russian. 20 refs.
Rivers, Estuaries, Flow control, Ice conditions, Permafrost beneath rivers, Deltas, Permafrost distribution, Vegetation.

35-1432
Changes in climatic conditions and moisture cycle in the atmosphere caused by redistribution of water resources. {Izmenenie klimaticheskikh uslovii i vlagooborota v atmosfere pod vliianiem pereraspredeleniia vodnykh resursov},
Drozdov, O A., et al, Mezhbasseĭnovoe pereraspredelenie vodnykh resursov i ego vliianie na prirodnye usloviia i narodnoe khoziaĭstvo (Redistribution of water resources among river basins and its effect on natural conditions and the national economy) edited by A A Sokolov, Leningrad, 1980, p.133-149, In Russian 23 refs
River flow, Ice conditions, Flow control, Climatic changes, Forecasting, Meteorological charts, Arctic Ocean.

35-1433
Self-regulation of sublimation metamorphism in snow cover layers. {Avtoreguliatsiia sublimatsionnogo metamorfizma v gorizontakh snezhnoĭ tolshchi},
Kolomyts, E G., Matematicheskie metody v ekologii i geografii (Mathematical methods in ecology and geography) edited by B.I. Semkin, Vladivostok, 1978, p 37-76, In Russian 18 refs
Snow cover structure, Snow stratigraphy, Metamorphism (snow), Sublimation, Snow recrystallization, Snow crystal structure.

35-1434
Improvement of road construction technology. {Sovershenstvovanie tekhnologii stroitel'stva dorog},
Zbarzhevskiĭ, V V., et al, Kiev, Budivel'nik, 1980, 152p.
Nesterenko, IU T., Pervov, B A
Roads, Pavements, Concrete structures, Bituminous concretes, Roadbeds, Construction materials, Construction equipment, Frost heave, Cold weather construction.

35-1435
Complex geographic studies and the development of mountainous regions. [Kompleksnoe geograficheskoe izuchenie i osvoenie gornykh territorii].
Gvozdetskii, N.A., ed. Leningrad, 1980. 150p. In Russian. For selected papers see 35-1436 through 35-1441. Refs. passim.
Mountains, Landscape types, Alpine tundra, Taiga, Cryogenic soils, Slope processes, Avalanches, Mudflows, Economic development, Environmental protection, Human factors, Waste disposal.

35-1436
Climatic problems of mountainous regions in the USSR. [O klimaticheskikh problemakh gornykh territorii SSSR].
Bagdasarian, A.B., Kompleksnoe geograficheskoe izuchenie i osvoenie gornykh territorii (Complex geographic studies and the development of mountainous regions) edited by N.A. Gvozdetskii. Leningrad, 1980, p.29-36. In Russian.
Mountains, Climate, Meteorological factors, Aerial surveys, Human factors, Ecology, Environmental protection, Weather forecasting, Landscape types, Thermal regime, Snow cover effect, Soil temperature, Geocryology.

35-1437
Role of glaciological investigations in the studies and development of mountainous regions. [Rol' glatsiologicheskikh issledovanii pri izuchenii i osvoenii gornykh oblastei].
Kotlakov, V.M., et al. Kompleksnoe geograficheskoe izuchenie i osvoenie gornykh territorii (Complex geographic studies and the development of mountainous regions) edited by N.A. Gvozdetskii. Leningrad, 1980, p.37-40. In Russian. 15 refs.
Zabirov, R.D., Reviakin, V.S.
Mountains, Economic development, Mountain glaciers, Snow cover distribution, Snow line, Nivation, Snow water equivalent, Glacial rivers, Alimentation, Research projects, Human factors, Environmental protection, Permafrost hydrology.

35-1438
Water resources of mountains. [Vodnye resursy gor].
L'vovich, M.I., et al. Kompleksnoe geograficheskoe izuchenie i osvoenie gornykh territorii (Complex geographic studies and the development of mountainous regions) edited by N.A. Gvozde[illegible]eningrad, 1980, p.50-65. In Russian. 22 refs.
Sosedov, I.S., Tsigel'naia, I.D.
Mountains, Water reserves, Glacial rivers, Mountain glaciers, Glacier ablation, Snow water equivalent, Glacial hydrology.

35-1439
Engineering geography of mountain regions: subject matter and current problems. [Inzhenernaia geografiia gornykh stran. Soderzhanie i aktual'nye zadachi].
Tushinskii, G.K., et al. Kompleksnoe geograficheskoe izuchenie i osvoenie gornykh territorii (Complex geographic studies and the development of mountainous regions) edited by N.A. Gvozdetskii. Leningrad, 1980, p.66-73. In Russian. 6 refs.
Miagkov, S.M., Troshkina, E.S., Fleishman, S.M.
Geography, Engineering, Slope processes, Avalanches, Mudflows, Avalanche engineering, Avalanche formation, Avalanche triggering, Protection.

35-1440
Altitudinal zonation of mountain vegetation in the USSR. [Problemy vysotnoi poiasnosti rastitel'nosti gor SSSR].
Staniukovich, K.V., Kompleksnoe geograficheskoe izuchenie i osvoenie gornykh territorii (Complex geographic studies and the development of mountainous regions) edited by N.A. Gvozdetskii. Leningrad, 1980, p.74-81. In Russian.
Mountains, Economic development, Alpine landscapes, Mountain soils, Cryogenic soils, Forest soils, Taiga, Alpine tundra, Vegetation.

35-1441
Utilization and protection of mountain landscapes in the USSR. [Ispol'zovanie i okhrana landshaftov gor SSSR].
Makunina, A.A., et al. Kompleksnoe geograficheskoe izuchenie i osvoenie gornykh territorii (Complex geographic studies and the development of mountainous regions) edited by N.A. Gvozdetskii. Leningrad, 1980, p.107-119. In Russian. 3 refs.
Samoilova, G.S., Fedina, A.E.
Mountains, Landscape types, Alpine tundra, Taiga, Economic development, Environmental protection, Human factors, Waste disposal.

35-1442
Significance of swamps in the biosphere (hydrologic aspects). [Znachenie bolot v biosfere (gidrologicheskie aspekty)].
P'iavchenko, N.I., ed. Moscow, Nauka, 1980. 176p. In Russian. For selected papers see 35-1443 through 35-1447.
Taiga, Paludification, Land reclamation, Drainage, Runoff, Permafrost distribution, Cryogenic soils, Soil erosion, Solifluction, Aerial surveys, Spaceborne photography, Mapping.

35-1443
Paludification processes in the forest zone. [Bolotoobrazovatel'nyi protsess v lesnoi zone].
P'iavchenko, N.I., Znachenie bolot v biosfere (gidrologicheskie aspekty) (Significance of swamps in the biosphere (hydrologic aspects)) edited by N.I. P'iavchenko. Moscow, Nauka, 1980, p.7-16. In Russian. 29 refs.
Taiga, Paludification, Peat, Mosses, Swamps, Thermal regime, Cryogenic soils, Soil erosion, Permafrost hydrology.

35-1444
Interaction between swamps and the surrounding environments in the central part of the West Siberian Plain. [O vzaimodeistvii bolot i okruzhaiushchei sredy (na primere tsentral'noi chasti Zapadno-Sibirskoi ravniny)].
Liss, O.L., et al. Znachenie bolot v biosfere (gidrologicheskie aspekty) (Significance of swamps in the biosphere (hydrologic aspects)) edited by N.I. P'iavchenko. Moscow, Nauka, 1980, p.95-112. In Russian. 41 refs.
Berezina, N.A.
Taiga, Paludification, Swamps, Ecosystems, Cryogenic soils, Peat, Mosses, Permafrost distribution, Soil erosion, Thermokarst, Solifluction.

35-1445
Water-regulating role of forests under monsoon conditions in the Far East. [Vodoreguliruiushchaia rol' bolot v uslovnakh mussonnogo klimata Dal'nego Vostoka].
Prozorov, IU.S., Znachenie bolot v biosfere (gidrologicheskie aspekty) (Significance of swamps in the biosphere (hydrologic aspects)) edited by N.I. P'iavchenko. Moscow, Nauka, 1980, p.128-133. In Russian. 13 refs.
Taiga, Landscape types, Peat, Vegetation, Biomass, Swamps, Water level, Permafrost distribution, Seasonal freeze thaw.

35-1446
Role of hydrologic regime in the development of woody plants in high bogs of the non-chernozem zone. [Rol' gidrologicheskogo rezhima v razvitii drevesnoi rastitel'nosti na verkhovykh bolotakh nechernozem'ia].
Romanova, E.A., Znachenie bolot v biosfere (gidrologicheskie aspekty) (Significance of swamps in the biosphere (hydrologic aspects)) edited by N.I. P'iavchenko. Moscow, Nauka, 1980, p.147-152. In Russian. 9 refs.
Swamps, Land reclamation, Economic development, Forestry, Soil formation, Vegetation.

35-1447
Using space information in swamp protection and melioration. [Ispol'zovanie kosmicheskoi informatsii dlia okhrany bolot i ikh melioratsii].
Vostokova, E.A., et al. Znachenie bolot v biosfere (gidrologicheskie aspekty) (Significance of swamps in the biosphere (hydrologic aspects)) edited by N.I. P'iavchenko. Moscow, Nauka, 1980, p.159-167. In Russian. 8 refs.
Somova, V.I., Sushchenia, V.A., Shevchenko, L.A.
Swamps, Ecosystems, Landscape types, Land reclamation, Environmental protection, Spaceborne photography, Charts, Classifications.

35-1448
Weather-forming factors and their role in bioclimatology. [Pogodoobrazuiushchie faktory i ikh rol' v bioklimatologii].
Pogosian, Kh.P., ed. Moscow, 1980. 108p. In Russian. For selected papers see 35-1449 and 35-1450. Refs. passim.
Chubukov, L.A., ed.
Arctic landscapes, Subarctic landscapes, Alpine landscapes, Economic development, Mapping, Urban planning, Baykal Amur railroad, Cryogenic soils, Soil air interface, Soil temperature.

35-1449
Peculiarities of thermal regime of soils in the USSR as parameters of soil climate. [Osobennosti teplovogo rezhima pochv SSSR kak parametra pochvennogo klimata].
Dimo, V.N., Pogodoobrazuiushchie faktory i ikh rol' v bioklimatologii (Weather forming factors and their role in biochimatology) edited by Kh.P. Pogosian and L.A. Chubukov. Moscow, 1980, p.47-59. In Russian. 14 refs.
Arctic landscapes, Subarctic landscapes, Alpine landscapes, Cryogenic soils, Classification, Soil profiles, Mapping, Soil temperature, Soil air interface, Vegetation factors.

35-1450
Long-term weather regime as a basis for health evaluation of climate in the Baykal Amur railroad area. [Mnogoletnii rezhim pogody kak osnova fiziologo-gigienicheskoi otsenki klimata territorii Baikalo-Amurskoi magistrali].
Kornilova, R.P., et al. Pogodoobrazuiushchie faktory i ikh rol' v bioklimatologii (Weather forming factors and their role in biochimatology) edited by Kh.P. Pogosian and L.A. Chubukov. Moscow, 1980, p.60-69. In Russian. 6 refs.
Ratner, E.M.
Landscape types, Taiga, Microclimatology, Urban planning, Baykal Amur railroad, Economic development, Meteorological factors, Snow cover distribution, Wind factors, Weather forecasting, Meteorological charts.

35-1451
Climate formation. [Sovremennye problemy klimatoobrazovaniia].
Khromov, S.P., ed. Moscow, Izd-vo Moskovskogo universiteta, 1980. 183p. In Russian. For selected papers see 35-1452 and 35-1453. Refs. passim.
Synoptic meteorology, Atmospheric circulation, Air temperature, Humidity, Atmospheric pressure, Climatic changes, Meteorological data, Meteorological charts.

35-1452
Role of air masses in the formation of winter air temperature in West Siberia. [Rol' vozdushnykh mass v formirovanii temperatury vozdukha zimoi v Zapadnoi Sibiri].
Miachkova, N.A., Sovremennye problemy klimatoobrazovaniia (Climate formation) edited by S.P. Khromov. Moscow, Izd-vo Moskovskogo universiteta, 1980, p.106-118. In Russian. 8 refs.
Synoptic meteorology, Atmospheric circulation, Air temperature, Humidity, Seasonal variations, Meteorological data.

35-1453
Pressure and circulation conditions prevailing during the last millenium over West Siberia and Central Asia (the Central Region). [Bariko-tsirkuliatsionnye usloviia poslednego tysiacheletiia na territorii Zapadnoi Sibiri i Srednei Azii (Sredinnogo regiona)].
Adamenko, V.N., Sovremennye problemy klimatoobrazovaniia (Climate formation) edited by S.P. Khromov. Moscow, Izd-vo Moskovskogo universiteta, 1980, p.130-143. In Russian. 18 refs.
Synoptic meteorology, Atmospheric circulation, Atmospheric pressure, Air temperature, Climatic changes, Meteorological charts.

35-1454
Study of the dynamics of vegetative cover damaged by industrial activities. [Issledovanie dinamiki rastitel'nogo pokrova, narushennogo tekhnogennym vozdeistviem].
Moskalenko, N.G., et al. *Voprosy geografii*, 1980, Vol.114, p.144-164. In Russian.
[Astreba, N.V.]
Petroleum industry, Tundra, Taiga, Swamps, Cryogenic soils, Soil erosion, Revegetation, Meteorological factors.

35-1455
Characteristics of iceberg drift. [Nekotorye zakonomernosti dreifa aisbergov].
Eskin, L.I., *Sovetskaia antarkticheskaia ekspeditsiia Informatsionnyi biulleten'*, 1980, No.101, p.68-76. In Russian. 3 refs.
Icebergs, Drift, Antarctica.
Transponders were placed on a number of floating icebergs in order to track them by satellite. Data from 5 bergs are reported. Several conclusions were drawn from the findings. First of all the extent and location of zones where icebergs exit northward, reported in earlier literature, were confirmed and refined. Tidal influence on iceberg drift is pronounced. It is noted that icebergs under some hydrometeorological conditions, can drift in coastal areas eastwards into the exit zones. Glacier iceberg tongues may include not only local bergs but also these from other areas. Mean, maximum and minimum

drift rates along the coast, in the exit zone and in the Antarctic Circumpolar Current were computed

35-1456
Iceberg drift in the Antarctic Circumpolar Current. (O dreife aisbergov v Antarkticheskom tsirkumpolarnom techenii).
Eskin, L I., *Sovetskaia antarkticheskaia ekspeditsiia Informatsionnyĭ biulleten'*, 1980, No 101, p.77-81, In Russian. 2 refs
Icebergs, Drift, Antarctica.
The dynamics of Southern Ocean icebergs in the Antarctic Circumpolar Current were studied on the basis of data from French observations between 85 and 118E Bergs in the Antarctic Circumpolar Current move in a generally eastward direction at a mean speed of 5-8 miles day, but velocity may reach 30 miles/day Synoptic processes affect drift significantly If icebergs occur in the forward portion of severe baric depressions, they may change directions to the north or south Deviations from eastward drift may continue for up to 1 5 months, carrying the berg 100 miles

35-1457
Iceberg distribution in the Atlantic sector of East Antarctica (1977-78). (Raspredelenie aisbergov v Atlanticheskom sektore Vostochnoĭ Antarktiki (1977/78g.)).
Kuznetsov, I.M., *Sovetskaia antarkticheskaia ekspeditsiia Informatsionnyĭ biulleten*, 1980, No.101, p.82-87, In Russian. 6 refs.
Sea ice, Icebergs, Ice surveys, Antarctica—Weddell Sea.
Iceberg surveys were done from Nov 1977 to Mar. 1978 on the *Kapitan Kondrat'ev* in the Weddell Sea and the Sea of the Cosmonauts, near Molodezhnaya, and between Novolazarevskaya and Druzhnaya A total of 8566 bergs were seen, maps giving distribution are included Most occurred near the coast, facilitating pack ice accumulation for 30-40 miles out and impeding navigation even before the full freeze-up Extremely large icebergs were measured by the ship's navigator and their sizes and locations are given in a table

35-1458
Assessing several characteristics of antarctic ice. (K voprosu ob otsenke nekotorykh kharakteristik antarkticheskikh l'dov).
Botnikov, V.N., et al, *Sovetskaia antarkticheskaia ekspeditsiia. Informatsionnyĭ biulleten'*, 1980, No 101, p.88-92, In Russian 14 refs.
Voĭnov, G.N., Kuznetsov, I M., Romanov, A.A.
Pack ice, Sea ice, Ice surface, Ice navigation, Ice mechanics.
Visual and mathematical methods for assessing sea ice characteristics important for navigation in antarctic waters are discussed

35-1459
Bottom sediments under the Novolazarevskaya ice shelf. (Donnye osadki pod shel'fovym lednikom novolazarevskim).
Kolobov, D.D , et al, *Sovetskaia antarkticheskaia ekspeditsiia Informatsionnyĭ biulleten'*, 1980, No 101, p.93-96, In Russian 5 refs
Savatiugin, L.M.
Ice shelves, Glacial geology, Sediments, Antarctica—Queen Maud Land.
A drill hole was made through the 357 m Novolazarevskii ice shelf in 1975 and ice and bottom sediments studied. Mineral composition is shown in tables and diatom population listed The predominance of antarctic diatoms indicates temperatures of -1 9 to 1.5C Analysis of the ice and bottom sediment columns leads to the following conclusions Contemporary sedimentation conditions are cold and stagnant, lacking significant mixing of water masses The accumulation area lies to the south of the sedimentation area- in the Queen Maud Land mountains Transport of fragmented material is accomplished by the body of the glacier, and sedimentation occurs because of melting out of unsorted materials from the ice shelf.

35-1460
Melting of antarctic fast ice. (Taianie antarkticheskogo pripainogo l'da).
Nazintsev, IU L., *Sovetskaia antarkticheskaia ekspeditsiia. Informatsionnyĭ biulleten*, 1980, No.101, p 97-101, In Russian 2 refs
Pack ice, Sea ice, Seasonal ablation, Ice heat flux, Heat balance, Fast ice, Antarctica.
Melting of the pack ice 1 5-2 0 km from shore near Molodezhnaya Station was studied during 2 summer seasons 1970-1972 The data gathered permit inferences about relief development and degree of ablation at different seasons Figure 1 shows that the ice surface changes unevenly from one point to another from the very start of the summer melt Also variations in ablation rate vary significantly both during the season and from year to year The relation between ablation at the top and bottom of the ice and water temperature was investigated Heat required to melt snow cover and to effect breakup was estimated.

35-1461
Construction of reference points for pack ice melting studies. (Konstruktsiia reperov dlia izucheniia taianiia antarkticheskogo pripaia).
Nazintsev, IU.L., *Sovetskaia antarkticheskaia ekspeditsiia Informatsionnyĭ biulleten'*, 1980, No 101, p.102-103, In Russian.
Pack ice, Sea ice, Ice melting, Markers, Indicating instruments.
The method by which reference points were established and marked in the ice for ablation and bottom melting studies is described and sketched

35-1462
Infiltration and freezing of sea water in coastal glaciers. (Infil'tratsiia i zamerzanie morskoi vody v pribrezhnykh lednikakh).
Dubrovin, L I., et al, *Sovetskaia antarkticheskaia ekspeditsiia Informatsionnyĭ biulleten'*, 1980, No.101, p.104-108, In Russian 8 refs
Preobrazhenskaia, M.A
Brines, Glacier ice, Ice composition, Ice thermal properties, Sea water, Antarctica.
A review of studies of infiltration by sea water of coastal ice is given and some conclusions drawn Sea water infiltration and salt circulation in coastal glaciers is not unusual in Antarctica Because of them unique intraglacial waters form which are high in minerals This phenomenon whenever it occurs, greatly affects structure and heat balance in coastal icebergs Brines in glaciers can be discerned by aerial radar, this technique can be used to determine how widespread brines are in antarctic ice shelves

35-1463
Effect of coring conditions and size of sections on density determination in sea ice. (Vliianie tortsevykh uslovii i vysoty obraztsov na rezul'taty izmerenna prochnosti morskikh l'dov).
Fokeev, N.V., *Sovetskaia antarkticheskaia ekspeditsiia. Informatsionnyĭ biulleten'*, 1980, No 101, p 109-114, In Russian. 7 refs
Sea ice, Ice density, Ice friction, Ice cores, Ice coring drills.
In order to prevent distortion of ice cores during drilling, storage and study from pressure, friction and heat exchange, separators made of various materials rubber, wood, plastic, etc were introduced between sections of core Various combinations of coring methods and separators were tried Results indicate that the method worked out can be helpful in obtaining accurate density measurements in cored sea ice

35-1464
Computational error during navigation among icebergs. (O pogreshnosti schislenia pri plavanii sredi aisbergov).
Utusikov, IU D., *Sovetskaia antarkticheskaia ekspeditsiia Informatsionnyĭ biulleten'*, 1980, No 101, p 125-129, In Russian. 9 refs
Ice navigation, Icebergs.
Error in calculating position of the ship with respect to a nearby iceberg when using the *Omega* LLF radar system in combination with satellite data is discussed

35-1465
Direct measurement of the attenuation of ocean waves by pack ice.
Squire, V A., et al, *Nature*, Jan. 24, 1980, 283(5745), p.365-368, 13 refs.
Moore, S.C.
Water waves, Attenuation, Pack ice, Bering Sea.
Early experimental work in the Antarctic using a ship-borne wave recorder has shown that pack ice can significantly attenuate incoming ocean waves, particularly those of shorter period Wadhams has subsequently reported similar wave decay through Arctic ice in data obtained remotely by airborne laser profiling and inverted echo sounding from a submarine The 2 predominant mechanisms by which the decay can occur scattering by individual ice floes and energy loss by creep within each flexing floe were studied theoretically The results of further experiments to measure wave decay which took place in the Bering Sea during spring 1979 from the research ship Surveyor of the NOAA are presented During the cruise, oceanographic, meteorological and remote sensing data were also collected The energy decay of waves in pack ice is exponential with an attenuation coefficient which increases with decreasing wave period (Auth)

35-1466
Glacial hydrology of an ice-dammed lake, Ellesmere Island, N.W.T.
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Lake ice, Ice dams, Glacial hydrology, Drainage, Meteorological factors, Subglacial caves, Lake water.

35-1467
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Roggensack, W D., Edmonton, Alberta, University, Department of Civil Engineering, 1977, 449p., Canadian Theses on Microfiche, No 32058, Ph D dissertation Refs p 330-346
Permafrost structure, Frozen fines, Ground ice, Ground thawing, Shear strength, Stresses, Soil water migration, Minerals, Soil strength, Gas inclusions, Interfaces.

35-1468
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Permafrost mass transfer, Slope stability, Ground ice, Ground thawing, Landforms, Frozen ground mechanics, Computer applications, Geological processes.

35-1469
Proceedings; Agenda 80s.
Alaska Science Conference, 31st, Anchorage, Alaska, Sep 17-19, 1980, Anchorage, Alaska, American Association for the Advancement of Science, Alaska Division, 1980, 148p., Abstracts of papers.
River flow, Soil erosion, Revegetation, Environmental impact, Natural resources, Environmental protection, United States—Alaska.

35-1470
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Sonesson, M., ed, Ecological bulletins, No.30, Stockholm, 1980, 313p., Refs passim For individual articles see 35-1471 through 35-1485
Swamps, Tundra, Plant ecology, Soil physics, Nutrient cycle, Mosses, Climatic factors, Plant physiology.

35-1471
IBP/PT Tundra Biome Project. Objectives—planning—site.
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Jonsson, S., Rosswall, T., Rydén, B E
Tundra, Swamps, Ecosystems, Research projects, Permafrost, Vegetation, Sweden.

35-1472
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Fors, L., Kostov, L
Soil water, Tundra, Soil physics, Permafrost hydrology, Active layer, Vegetation.

35-1473
Climatic representativeness of a project period. Epilogue of a tundra study.
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Tundra, Swamps, Soil water, Climatic factors, Seasonal variations.

35-1474
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Nihlgard, B
Swamps, Tundra, Nutrient cycle, Minerals, Plant physiology, Primary productivity.

35-1475
Plant distribution and environment of a subarctic mire.
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Sonesson, M
Tundra, Swamps, Environments, Active layer, Water content.

35-1476
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Kvillner, E
Plant ecology, Classifications, Swamps, Tundra, Permafrost.

35-1477
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Bergman, H
Swamps, Tundra, Plants (botany), Primary productivity, Ecosystems.

35-1478
Diurnal dry weight variation and dry matter allocation of some tundra plants. 1. *Andromeda polifolia* L.
Flower-Ellis, J.G K., Ecology of subarctic mire. Edited by M. Sonesson. Ecological bulletins, No.30, Stockholm, 1980, p.139-162, 33 refs.
Tundra, Plant physiology, Nutrient cycle, Diurnal variations, Drying.

35-1479
Diurnal dry weight variation and dry matter allocation of some tundra plants. 2. *Rubus chamaemorus* L.
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Tundra, Plant physiology, Nutrient cycle, Diurnal variations, Drying.

35-1480
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Linder, S
Swamps, Mosses, Tundra, Photosynthesis, Climatic factors, Plant physiology.

35-1481
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Swamps, Tundra, Mosses, Plant physiology, Growth, Environments, Temperature effects, Nutrient cycle, Light effects.

35-1482
Nitrogen cycling in a subarctic ombrotrophic mire.
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Granhall, U
Nutrient cycle, Swamps, Tundra, Plant physiology.

35-1483
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Svensson, B H., Ecology of subarctic mire. Edited by M. Sonesson Ecological bulletins, No 30, Stockholm, 1980, p.235-250, 20 refs
Swamps, Tundra, Carbon dioxide, Plant physiology, Temperature effects.

35-1484
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Kostov, L
Soil freezing, Ground thawing, Tundra, Snow melting, Seasonal freeze thaw, Discontinuous permafrost, Nutrient cycle, Thermal conductivity, Albedo, Meteorological factors.

35-1485
Energy flow through the subarctic mire at Stordalen.
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Swamps, Tundra, Heat transfer, Organic soils, Bacteria, Fungi.

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Light pillar climatology.
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Ice crystal optics, Ice crystal structure.

35-1487
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Benson, C S., *Weatherwise*, Oct. 1980, 33(5), p.202-205.
Snow cover, Tundra, Taiga, United States—Alaska.

35-1488
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Nibler, G.J., *Weatherwise*, Oct 1980, 33(5), p.207-209
River ice, Ice breakup, Air temperature, United States—Alaska.

35-1489
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Rizzo, K.R.
Air pollution, Ice fog, Temperature inversions, United States—Alaska.

35-1490
Strength of materials and structural elements under extreme conditions. Vol.1. [Prochnost' materialov i elementov konstruktsii v ekstremal'nykh uslovnakh. Tom 1].
Pisarenko, G.S., et al, Kiev, Naukova dumka, 1980, 536p, In Russian with English table of contents enclosed 547 refs.
Construction materials, Metals, Steel structures, Thermal stresses, Frost resistance, Deformation, Thermal insulation, Test equipment, Laboratory techniques.

35-1491
Vegetation of the European part of the USSR. [Rastitel'nost' evropeiskoi chasti SSSR].
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Arctic landscapes, Deserts, Tundra, Forest tundra, Taiga, Swamps, Cryogenic soils, Ecology, Vegetation.

35-1492
Model for the prediction of ice lensing and frost heave in soils.
Gilpin, R.R., *Water resources research*, Oct. 1980, 16(5), p 918-930, 18 refs.
Ice lenses, Frost heave, Soil water migration, Soil temperature, Soil pressure, Thermal conductivity, Particles, Boundary layer, Substrates, Mathematical models.

35-1493
New method and apparatus for testing air content of fresh concrete in situ.
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Beaton, R.
Concrete strength, Concrete heating, Air entrainment, Thermal expansion.

35-1494
Tension resistant inclusions in soils.
Andrawes, K.Z., et al, *American Society of Civil Engineers Geotechnical Engineering Division Journal*, Dec. 1980, 106(GT12), p 1313-1326, 13 refs
McGown, A., Mashhour, M.M., Wilson-Fahmi, R.F
Soil stabilization, Slope stability, Earthwork, Reinforced earth.

35-1495
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O'Neill, M.W., et al, *American Society of Civil Engineers Geotechnical Engineering Division Journal*, Dec. 1980, 106(GT12), p 1345-1367, 36 refs.
Poormoayed, N.
Clay soils, Foundations, Earthwork, Soil water migration, Water content, Subgrade soils, Design.

35-1496
Energy interaction between reservoirs and the atmosphere. [Nekotorye voprosy energeticheskogo vzaimodeistvna vodoemov s atmosferoi].
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Heat transfer, Water temperature, Air temperature, Thermodynamics, Meteorological factors, Ice formation.

35-1497
New approach to the morphological stability of the Stefan problem.
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Rothen, F.
Stefan problem, Soil freezing, Ground thawing, Ice water interface, Thermodynamics, Boundary value problems, Analysis (mathematics), Theories.

35-1498
Equations speed permafrost-area line analysis.
King, G.G., *Oil and gas journal*, Dec 15, 1980, 78(50), p 80-84, 8 refs
Pipeline insulation, Permafrost preservation, Frost heave, Analysis (mathematics).

35-1499
Tough plow blades save big bucks. *American city and county*, Nov. 1980, 96(11), p.55-57
Snow removal, Equipment.

35-1500
Acidity of polar ice cores in relation to absolute dating, past volcanism, and radio echoes.
Hammer, C.U., *Journal of glaciology*, 1980, 25(93), p 359-372, In English with French and German summaries. 37 refs
Ice cores, Ice dating, Age determination, Chemical properties, Volcanoes, Radio echo soundings.

35-1501
Firn densification: an empirical model.
Herron, M.M., et al, *Journal of glaciology*, 1980, 25(93), p 375-385, In English with French and German summaries. 29 refs
Langway, C.C., Jr
Firn, Density (mass/volume), Mathematical models.
An empirical model of firn densification from the surface to the zone of pore close-off has been constructed Fundamental rate equations have been derived from the first two stages of densification In the first stage, for densities less than 0.55 Mg/cu m, the densification rate is proportional to the mean annual accumulation times the difference in density between snow and ice The densification rate in the second stage, where Mg/cu m snow density 0.8 Mg/cu m, is proportional to the square root of the accumulation rate and to the difference in density between snow and ice Depth-density and depth-age calculations from this model are compared with observation Model accumulation rates are within about 20% of values obtained by other techniques It is suggested that depth intervals of constant density in some Antarctic cores may represent a synchronous event in the 1880's when ten times the normal accumulation fell within a year or two (Auth.)

35-1502
Observations of sediment-laden icebergs in antarctic waters: implications to glacial erosion and transport.
Anderson, J.B., et al, *Journal of glaciology*, 1980, 25(93), p 387-396, In English with French and German summaries 25 refs
Domack, E.W., Kurtz, D.D.
Icebergs, Sediments.
Sediment-laden icebergs are rarely sighted in Antarctic waters However, during the recent Deep Freeze 79-USCGC *Glacier* expedition to the George V Coast and the south-western Ross Sea, nine sediment-laden icebergs and several pieces of pack ice with surficial sediment layers were observed These observations include basal debris zones, debris slumped on to glaciers and floating ice, and englacial debris believed to have been incorporated along shear zones Sediment samples collected from icebergs were texturally and mineralogically variable Some were unsorted mixtures consisting of a wide variety of angular minerals and rock fragments, others consisted primarily of slate clasts, quartz sand, and rock flour (Auth.)

35-1503
Ice-shelf grounding: ice and bedrock temperature changes.
MacAyeal, D.R., et al, *Journal of glaciology*, 1980, 25(93), p.397-400, In English with French and German summaries 8 refs.
Thomas, R.H
Ice shelves, Grounded ice, Temperature variations, Antarctica—Ross Ice Shelf.
Ice rises form where an ice shelf runs aground on the sea bed After grounding occurs, basal ice temperatures cool from the sea-water temperature towards an equilibrium temperature appropriate to grounded ice This cooling can take many thousands of years, and much of the delay is due to the thermal inertia of the bedrock Here, we calculate transient temperature profiles for an ice rise with a final summit thickness of 520 m that formed by grounding of ice sheets 420 m thick Seventy-five per cent cooling of the basal ice takes between 7,000 and 11,500 years, depending on the thermal memory of the bedrock This compares with an equivalent time of only 1,400 years if we neglect the thermal inertia of the bedrock Because the surface slopes of the ice rise are related to the flow properties of the underlying ice, the summit thickness will tend to thicken as the basal ice cools In principle, it should be possible to estimate the age of a recently-formed ice rise by examining its temperature/depth profile (Auth.)

35-1504
Analysis of the ice profiles obtained by submarine sonar in the Beaufort Sea.
Wadhams, P., et al, *Journal of glaciology*, 1980, 25(93), p 401-414, In English with French and German summaries 23 refs
Horne, R.J.
Subglacial observations, Sea ice, Ice bottom surface, Profiles, Acoustic measurement, Beaufort Sea.

35-1505
Applications of the satellite thermal infrared images for monitoring North Water during the periods of polar darkness.
Dey, B., *Journal of glaciology*, 1980, 25(93), 425-438. In English with French and German summaries 29 refs
Remote sensing, Spaceborne photography, Infrared reconnaissance, Infrared photography, Polynyas, Sea ice, North Water.

35-1506
Radiation measurements in Lewis Glacier, Mount Kenya, Kenya.
Hastenrath, S., et al, *Journal of glaciology*, 1980, 25(93), p.439-444. In English with French and German summaries 6 refs
Patnaik, J.K.
Solar radiation, Measuring instruments, Kenya—Lewis Glacier.

35-1507
Snow-avalanche impact on structures.
Lang, T.E., et al, *Journal of glaciology*, 1980, 25(93), p 445-455. In English with French and German summaries. 12 refs
Brown, R.L.
Avalanche mechanics, Avalanche modeling, Impact strength, Computerized simulation.

35-1508
Glacier-bed landforms of the prairie region of North America.
Moran, S.R., et al, *Journal of glaciology*, 1980, 25(93), p 457-476. In English with French and German summaries. 90 refs.
Clayton, L., Hooke, R.L., Fenton, M.M., Andriashek, L.D.
Landforms, Glacial geology, Plains, Geologic structures.

35-1509
Radio-echo equipment for depth sounding of temperate glaciers.
Sverrisson, M., et al, *Journal of glaciology*, 1980, 25(93), p 477-486. In English with French and German summaries. 12 refs
Jóhannesson, A., Björnsson, H.
Radio echo soundings, Acoustic measurement, Measuring instruments, Glacier thickness.

35-1510
Short-lived damming of a high Arctic ice-marginal stream, Ellesmere Island, N.W.T., Canada.
Ballantyne, C.K., et al, *Journal of glaciology*, 1980, 25(93), p 487-491. In English with French and German summaries. 6 refs
McCann, S.B
River flow, Ice dams, Ice breakup.

35-1511
Late Quaternary rock glaciers, Mount Kenya, Kenya.
Mahaney, W.C., *Journal of glaciology*, 1980, 25(93), p 492-497. In English with French and German summaries 11 refs
Rock glaciers, Kenya—Kenya, Mount.

35-1512
Peculiar melt pattern in fresh-water ice.
Timco, G.W., et al, *Journal of glaciology*, 1980, 25(93), p 499-501
Coveney, D.B
Ice melting, Ice structure.

35-1513
Glacier energy balance and air temperature: comments on a paper by Dr. M. Kuhn.
Braithwaite, R.J., *Journal of glaciology*, 1980, 25(93), p 501-503. For the paper under discussion see 34-541 20 refs
Glacier heat balance, Heat transfer, Air temperature.

35-1514
Migration and biological activity of natural radionuclides in northern biogeocenoses. [Migratsiia i biologicheskoe deĭstvie estestvennykh radionuklidov v usloviiakh severnykh biogeotsenozov],
Popova, O.N., ed, Syktyvkar, 1980, 179p. In Russian For selected papers see 35-1515 through 35-1517 Refs passim
Taiga, Landscape types, Cryogenic soils, Minerals, Radioactive isotopes, Ecology, Soil chemistry.

35-1515
Content of natural radioactive elements in soils and soil-forming rocks of Southern Komi ASSR. [Soderzhanie estestvennykh radioaktivnykh elementov v pochvakh i pochvoobrazuiushchikh porodakh iuzhnoĭ chasti Komi ASSR],
Gil', T.V., Migratsiia i biologicheskoe deĭstvie estestvennykh radionuklidov v usloviiakh severnykh biogeotsenozov (Migration and biological activity of natural radionuclides in northern biogeocenoses) edited by O.N. Popova, Syktyvkar, 1980, p 52-57. In Russian. 8 refs
Taiga, Cryogenic soils, Soil composition, Radioactive isotopes.

35-1516
Influence of pH on Ra absorption in typical strongly podsolized soil (under experimental conditions). [Vliianie pH sredy na pogloshchenie radiia tipichnoĭ sil'nopodzolistoĭ pochvoĭ (v eksperimental'nykh usloviiakh)],
Gil', T.V., Migratsiia i biologicheskoe deĭstvie estestvennykh radionuklidov v usloviiakh severnykh biogeotsenozov (Migration and biological activity of natural radionuclides in northern biogeocenoses) edited by O.N. Popova, Syktyvkar, 1980, p 58-64. In Russian 8 refs.
Podsol, Cryogenic soils, Clay soils, Loess, Loams, Chemical composition, Radioactive isotopes.

35-1517
Influence of high thorium content on soil fauna of central taiga. [Vliianie povyshennogo soderzhaniia toriia v pochvakh na pochvennuiu faunu srednei taĭgi],
Krivolutskiĭ, D.A., et al, Migratsiia i biologicheskoe deĭstvie estestvennykh radionuklidov v usloviiakh severnykh biogeotsenozov (Migration and biological activity of natural radionuclides in northern biogeocenoses) edited by O.N. Popova, Syktyvkar, 1980, p 120-124, In Russian 2 refs.
Semiashkina, T.M.
Taiga, Cryogenic soils, Chemical composition, Radioactive isotopes, Ecology.

35-1518
Biological components of landscapes in the eastern Baykal Amur railroad area. [Biologicheskie komponenty landshaftov vostochnoĭ zony BAMa],
Babushkin, M.N., ed, Khabarovsk, 1979, 183p., In Russian For selected papers see 35-1519 through 35-1524. Refs passim.
Environmental impact, Taiga, Alpine tundra, Swamps, Environmental protection, Slope processes, Protective vegetation, Forest strips, Baykal Amur railroad, Rivers, Water pollution, Shore erosion, Vegetation factors, Plant ecology, Soil formation, Soil composition.

35-1519
Rare plants in the eastern Baykal Amur railroad area and their protection. [Redkie rastenia vostochnoĭ zony BAM i ikh okhrana],
Shlotgauer, S.D., Biologicheskie komponenty landshaftov vostochnoĭ zony BAMa (Biological components of landscapes in the eastern Baykal Amur railroad area) edited by M.N. Babushkin, Khabarovsk, 1979, p 3-10, In Russian 23 refs
Taiga, Plant ecology, Human factors, Environmental protection.

35-1520
Problems of rating protective and preventive forest strips in the eastern part of the Baykal Amur railroad area. [Problemy normirovaniia zashchitnykh i zapretnykh lesnykh polos v vostochnoĭ chasti zony BAMa],
Sapozhnikov, A.P., et al, Biologicheskie komponenty landshaftov vostochnoĭ zony BAMa (Biological components of landscapes in the eastern Baykal Amur railroad area) edited by M.N. Babushkin, Khabarovsk, 1979, p 11-26, In Russian. 7 refs
Zarkhina, E.S., Morin, V.A., Shirokova, M.R
Protective vegetation, Taiga, Forest strips, Snowdrifts, Slope processes, Landslides, Mudflows, Avalanches, Rivers, Pollution, Shore erosion.

35-1521
Human influence on development of diatomaceous algae growing in the Pil'da River (the Udyl' Lake Basin). [Vliianie tekhnogennogo faktora na razvitie diatomovykh vodoroslei v obrastaniiakh r. Pil'dy (Basseĭn ozera Udylia)],
IUr'ev, D.N., et al, Biologicheskie komponenty landshaftov vostochnoĭ zony BAMa (Biological components of landscapes in the eastern Baykal Amur railroad area) edited by M.N. Babushkin, Khabarovsk, 1979, p 64-76, In Russian 16 refs
Lebedev, IU.M.
Economic development, Mining, Environmental impact, Water pollution, Rivers, Algae.

35-1522
River valley soils in the vicinity of Zeya and Bureya hydroelectric power plants. [Pochvy dolin v raĭonakh vodokhranilishch Zeĭskoĭ i Bureĭskoĭ GES],
Grishin, I.A., et al, Biologicheskie komponenty landshaftov vostochnoĭ zony BAMa (Biological components of landscapes in the eastern Baykal Amur railroad area) edited by M.N. Babushkin, Khabarovsk, 1979, p 95-111, In Russian. 22 refs
Matiushkina, L.A
Permafrost beneath rivers, Electric power, Environmental impact, Taiga, Cryogenic soils, Soil chemistry, Vegetation factors, USSR—Zeya River, USSR—Bureya River.

35-1523
Soils of Tokinskiy Stanovik. [Pochvy Tokinskogo Stanovika],
Ershov, IU.I., Biologicheskie komponenty landshaftov vostochnoĭ zony BAMa (Biological components of landscapes in the eastern Baykal Amur railroad area) edited by M.N. Babushkin, Khabarovsk, 1979, p 112-131, In Russian. 6 refs
Alpine tundra, Taiga, Swamps, Landscape types, Cryogenic soils, Soil formation, Soil profiles, Soil chemistry, Vegetation factors, USSR—Stanovoy Mountains.

35-1524
Hydrochemical regime of swamps in the Evoron Lake Basin. [Gidrokhimicheskiĭ rezhim bolot v basseĭne ozera Evoronaj,
Ivanov, A.V., et al, Biologicheskie komponenty landshaftov vostochnoĭ zony BAMa (Biological components of landscapes in the eastern Baykal Amur railroad area) edited by M.N. Babushkin, Khabarovsk, 1979, p.156-180, In Russian. 22 refs
Prozorov, IU.S., Talovskaia, V.S., Kopoteva, T.A
Landscape types, Swamps, Alimentation, Rivers, Ground water, Water chemistry, Peat, Organic soils, Soil formation, Vegetation factors.

35-1525
Designing and excavation of recesses in hard rocks under complicated geologic conditions. [Osobennosti proektirovaniia i sooruzheniia skal'nykh vyemok v slozhnykh gornykh usloviiakh],
Basistov, M.A., *Transportnoe stroitel'stvo*, Dec 1980, No 12, p 5-7. In Russian.
Railroads, Embankments, Earthwork, Rock excavation, Slope processes, Solifluction, Landslides, Rock streams, Floods, Ice pressure, Design.

35-1526
Using bored situ-cast piles in bridge piers and foundations. [Primenenie buronabivnykh svaĭ v fundamentakh i oporakh mostov],
Rasskazov, I.D., et al, *Transportnoe stroitel'stvo*, Dec 1980, No.12, p 7-9, In Russian
Ronin, B.G., Pyshko, L.V., Shmidt, V.I
Bridges, Piers, Foundations, Piles, Permafrost beneath structures.

35-1527
Excavation of the Severo-Muyskiy tunnel. [Prokhodka shtol'ni Severo-Muĭskogo tonnelia],
Leonov, A.I., et al, *Transportnoe stroitel'stvo*, Dec 1980, No.12, p.11-14, In Russian
Ostrovskiĭ, I.S
Tunnels, Artificial freezing.

35-1528
Heat pipelines at the Baykal Amur railroad. [O teplovykh setiakh na BAMe],
Sokolov-Balkov, O.V., *Transportnoe stroitel'stvo*, Dec 1980, No 12, p 22, In Russian
Heat pipes, Permafrost beneath structures, Ground thawing, Pipelines, Baykal Amur railroad.

35-1529
Stability of roadbed slopes build of clayey earth under vibrodynamic loads. [Ustoichivost' otkosov zemlianogo polotna iz glinistykh gruntov vosprinimaiushchikh vibrodinamicheskuiu nagruzku],
Prokudin, I.V., *Transportnoe stroitel'stvo*, Dec. 1980, No 12, p.37-39, In Russian 3 refs
Roads, Roadbeds, Embankments, Clay soils, Dynamic loads, Vibration, Thixotropy, Design.

35-1530
Possibilities of thermal soil stabilization. [Vozmozhnosti primeneniia termicheskoĭ obrabotki gruntov],
IUrdanov, A.P., *Transportnoe stroitel'stvo*, Dec 1980, No.12, p 39-40, In Russian 9 refs
Soil stabilization, Clay soils, Loess, Electric heating, Slope stability.

35-1531
Future of the environment and global glaciological problems. (Budushchee prirodnoi sredy i global'nye problemy gliatsiologii).
Kotlıakov, V M., *Akademiia nauk SSSR Izvestiia Seriia geograficheskaia*, Jan.-Feb 1980, No 1, p.5-16. In Russian. 15 refs
Ice sheets, Glaciology, Environmental tests, Climatic changes.
The role of the glaciosphere in the global environment is examined and the necessity of including studies on glacier dynamics, especially of the Greenland and Antarctic ice sheets in global monitoring programs stressed A number of glaciological questions bearing on broader problems of environmental deterioration are pointed out

35-1532
Glacier systems of the Northeastern USSR. (Lednikovye sistemy Severo-Vostoka SSSR).
Krenke, A.N , et al, *Akademiia nauk SSSR Izvestiia Seriia geograficheskaia*, Jan.-Feb 1980, No 1, p 17-33. In Russian 43 refs
Chernova, L.P
Mountain glaciers, Snow cover distribution, Alimentation, Glacier ablation, Glacier ice, Ice growth, Climatic factors, Topographic effects, Charts.

35-1533
Present state and dynamics of permafrost in West Siberia near its southern boundary. (Uslovna sushchestvovaniia i dinamika mnogoletnemerzlykh porod Zapadnoĭ Sibiri vblizi ikh iuzhnoĭ granitsy).
Uvarkin, IU T , et al, *Akademiia nauk SSSR Izvestiia. Seriia geograficheskaia*, Jan.-Feb 1980, No.1, p 106-112. In Russian. 6 refs.
Chekhovskil, A.L , Shamanova, I.I
Permafrost distribution, Permafrost structure, Permafrost thickness, Frozen rock temperature, Permafrost transformation.

35-1534
Methods of mapping protected botanical objects in non-chernozem areas. (Printsipy i metody kartografirovaniia okhraniaemykh botanicheskikh ob"ektov (na primere Nechernozem'ia)).
Karpenko, A S., et al, *Botanicheskiĭ zhurnal*, Aug 1980, 65(8), p.1192-1202. In Russian 21 refs
Stavrova, N.I
Maps, Vegetation, Taiga, Swamps, Environmental protection.

35-1535
Origin and mechanism of large-scale climatic oscillations.
Sergin, V IA., *Science*, Sep 26, 1980, 209(4464), p 1477-1482, 13 refs
Climatic changes, Ice sheets, Hydrodynamics, Models.
Numerical experiments with a simplified thermodynamic model of the glacier-ocean-atmosphere global system have been performed Characteristic regimes of the system are auto-oscillations with periods varying between 20 000 and 80,000 years The longer climatic waves are generated by the influence of variations of the earth's orbital parameters Computed changes of glacial area, temperature, sea level, and other climate characteristics have values within expected ranges The transition from a relatively warm epoch (when continental ice sheets are absent) to conditions characteristic of the Pleistocene is modeled The calculated curves show how weak temperature fluctuations have been followed by large-scale oscillations (Auth)

35-1536
Cl-36 in polar ice, rainwater and seawater.
Finkel, R.C , et al, *Geophysical research letters*, Nov 1980, 7(11), p 983-986, 25 refs
Nishiizumi, K., Elmore, D., Ferraro, R.D., Gove, H E
Ice composition, Radioactive isotopes, Ice sheets, Sea water.
Concentrations of the cosmogenic radioisotope Cl 36 in Antarctic ice and in rain and an upper limit to the seawater value have been determined using van de Graaff accelerator high energy mass spectrometry Chlorine-36 concentrations in Antarctic ice lie in the range 2 5 to 8 7 million atoms Cl 36 kg Recent firn from Siple Station and ice samples collected from the Allan Hills ice field at locations where meteorites have been brought to the surface by glacial flow and ablation have Cl-36 contents which vary by more than a factor of three This variation can be attributed either to the effects of atmospheric mixing and scavenging or to radioactive decay in very old ice The Cl-36 concentration found in a sample of recent rainwater is much lower than has been reported in samples collected in the early 1960 s suggesting that there has been a large decrease in the concentration of atmospheric Cl 36 derived from nuclear weapons tests over this time period If measurement sensitivities can be increased somewhat calculations indicate that the bomb spike of Cl-36 may potentially be a useful oceanographic mixing tracer (Auth)

35-1537
Distribution and process of accumulation and ablation of snow on the west slope of Mt. Asahidake, Hokkaido.
Yamada, T , et al, *Low temperature science (Teion kagaku) Series A Physical sciences*, 1978, No.37, p 1-12, 11 refs.. In Japanese with English summary
Nishimura, H , Suizu, S , Wakahama, G.
Snow accumulation, Snow cover distribution, Slope orientation, Ablation, Alpine landscapes, Forest land, Seasonal variations.

35-1538
Study on ablation hollows on a melting snow surface.
Takahashi, S , *Low temperature science (Teion kagaku) Series A Physical sciences*, 1978, No 37, p 13-46, 18 refs , In Japanese with English summary
Snow melting, Ablation, Heat transfer, Wind velocity, Snow surface, Wind tunnels, Mountains, Analysis (mathematics).

35-1539
Observations on depositional and melting processes of snow at different altitudes of Mt. Teine, Hokkaido.
Suizu, S , et al, *Low temperature science (Teion kagaku) Series A Physical sciences*, 1978, No 37, p 47-54, 8 refs , In Japanese with English summary
Yamada, T., Wakahama, G
Snow melting, Snow accumulation, Snow water equivalent, Altitude, Thermal regime, Metamorphism (snow), Mountains.

35-1540
Percolation of sea ice, 1—measurements of kerosene permeability of NaCl ice.
Saito, T , et al, *Low temperature science (Teion kagaku) Series A Physical sciences*, 1978, No 37, p 55-62, 2 refs , In Japanese with English summary
Ono, N.
Salt ice, Sea ice, Petroleum products, Permeability, Brines, Analysis (mathematics).

35-1541
Failure of sea ice by repeated compression.
Nohguchi, Y , et al, *Low temperature science (Teion kagaku) Series A Physical sciences*, 1978, No.37, p 63-68, 4 refs , In Japanese with English summary
Tabata, T
Sea ice, Compressive properties, Ice creep, Ice cracks, Stresses, Temperature effects, Strain tests.

35-1542
Deflection of a floating ice sheet subjected to a moving load, Pt.2.
Takizawa, T., *Low temperature science (Teion kagaku) Series A Physical sciences*, 1978, No 37, p 69-78, 2 refs , In Japanese with English summary
Floating ice, Dynamic loads, Ice deformation, Velocity, Wave propagation, Deflection, Ice temperature, Salt ice, Ice sheets.

35-1543
Measurement of flexural waves on a breaking test of sea ice.
Ishida, T , *Low temperature science (Teion kagaku) Series A Physical sciences*, 1978, No 37, p.79-83, 1 ref , In Japanese with English summary.
Sea ice, Ice breaking, Flexural strength, Wave propagation, Tests.

35-1544
Study on ice on Lake Tofutsu.
Kawamura, T , et al, *Low temperature science (Teion kagaku) Series A Physical sciences*, 1978, No 37, p.85-91, 3 refs , In Japanese with English summary
Ono, N.
Lake ice, Ice crystal structure, Brines, Ice temperature, Salt ice, Ice salinity.

35-1545
Observation of oceanographic condition in the Okhotsk Sea coast of Hokkaido in winter.
Aota, M , et al, *Low temperature science (Teion kagaku) Series A Physical sciences*, 1978, No 37, p 93-105, 8 refs , In Japanese with English summary
Kawamura, T
Sea ice, Drift, Tidal currents, Water chemistry, Salinity, Water temperature, Ocean currents, Oceanographic surveys, Shores.

35-1546
Inertial period motions of drifting sea ice.
Ono, N , *Low temperature science (Teion kagaku) Series A Physical sciences*, 1978, No 37, p 107-113, 7 refs , In Japanese with English summary
Sea ice, Drift, Ice deformation, Velocity, Radar echoes, Radar photography, Wind factors.

35-1547
Relationship between ice-conditions and frequency characteristics of radar returns.
Aota, M , et al, *Low temperature science (Teion kagaku) Series A Physical sciences*, 1978, No 37, p 115-123, 9 refs , In Japanese with English summary
Ishida, T
Sea ice, Drift, Ice conditions, Radar echoes, Measurement.

35-1548
Reduction with increasing range in intensity of reflected power of sea ice radar waves.
Oi, M , et al, *Low temperature science (Teion kagaku) Series A Physical sciences*, 1978, No 37, p 125-129, 3 refs , In Japanese with English summary
Tabata, I
Sea ice, Radar echoes, Reflection, Wave propagation.

35-1549
Arctic sea ice research, 4—measurements of uniaxial compressive strength.
Nohguchi, Y , et al, *Low temperature science (Teion kagaku) Series A Physical sciences*, 1978, No.37, p 131-139, 10 refs , In Japanese with English summary
Aota, M , Tabata, T
Sea ice, Compressive properties, Ice strength, Ice crystal structure, Stress strain diagrams, Grain size, Anisotropy, Brittleness.

35-1550
Arctic sea ice research, 5—measurements of friction between sea ice and other materials.
Tushima, K , et al, *Low temperature science (Teion kagaku) Series A Physical sciences*, 1978, No 37, p.141-161, 20 refs , In Japanese with English summary
Tabata, T
Sea ice, Ice friction, Ice solid interface, Ice loads, Compressive properties, Surface roughness, Flexural strength, Brines.

35-1551
New counter-torque devices of a suspended electromechanical drill.
Suzuki, Y , *Low temperature science (Teion kagaku) Series A Physical sciences*, 1978, No 37, p 163-166, 7 refs.. In Japanese with English summary
Ice coring drills, Equipment, Tests.

35-1552
Development of a long-term temperature recorder
Akitaya, E , *Low temperature science (Teion kagaku) Series A Physical sciences*, 1978, No 37, p 167-169 In Japanese 1 ref
Ice temperature, Measuring instruments, Temperature measurement.

35-1553
Development of a portable albedometer.
Aburakawa, H , et al, *Low temperature science (Teion kagaku) Series A Physical sciences* 1978, No 37, p.171-174, In Japanese 3 refs
Fukami, H
Albedo, Snow optics, Measuring instruments.

35-1554
Observation of snow depth in Teshio mountainous region.
Aburakawa, H , *Low temperature science (Teion kagaku) Series A Physical sciences*, 1978, No 37, p 175-178, In Japanese 4 refs
Snow depth, Mountains, Seasonal variations.

35-1555
Boring core of ice taken from beneath the soil of a landslide.
Huzioka, T , et al, *Low temperature science (Teion kagaku) Series A Physical sciences*, 1978, No 37, p 179-180, In Japanese
Wakahama, G , Akitaya, E
Ground ice, Drilling, Ice cores, Landslides, Subsurface observations.

35-1556
Diurnal variation of soil water tension during soil freezing.
Takeda, K , et al, *Low temperature science (Teion kagaku) Series A Physical sciences*, 1978, No 37, p 181-183, In Japanese 1 ref
Ishizaki, I , Suzuki, Y
Soil freezing, Soil water, Water pressure, Stresses, Diurnal variations, Frost heave, Air temperature.

35-1557
Climatic changes in the interior Alaska; report of the Alaska Paleolimnology Research Project—1977/78/79.
Nakao, K., ed. Sapporo, Hokkaido University, Laboratory of Hydrology, Mar 1980, 77p. Refs passim
For individual articles see 35-1558 through 35-1562
Lakes, Lake water, Bottom sediment, Water temperature, Limnology, Climatic changes, Geomorphology, United States—Alaska—Harding Lake.

35-1558
Origin of Harding Lake.
Nakao, K., et al. Climatic changes in the interior Alaska, report of the Alaskan Paleolimnology Research Project—1977/78/79. Edited by K Nakao, Sapporo, Hokkaido University, Laboratory of Hydrology, Mar 1980, p 1-8, 4 refs
Tanoue, R
Bottom sediment, Gravity, Origin, Soundings, Lakes, Electric equipment.

35-1559
Water budget and lake-level stability of Harding Lake.
Nakao, K., et al. Climatic changes in the interior Alaska, report of the Alaskan Paleolimnology Research Project 1977 78/79. Edited by K Nakao, Sapporo, Hokkaido University, Laboratory of Hydrology, Mar 1980, p.9-15, 10 refs
Tanoue, R., Oike, T
Lake water, Water balance, Discontinuous permafrost, Meteorological data, Diurnal variations.

35-1560
Climatic changes in the interior Alaska.
Nakao, K., et al. Climatic changes in the interior Alaska; report of the Alaskan Paleolimnology Research Project--1977/78/79. Edited by K. Nakao, Sapporo, Hokkaido University, Laboratory of Hydrology, Mar. 1980, p.16-23
Laperriere, J., Ager, T A.
Climatic changes, Drill core analysis, Bottom sediment, Lakes, Paleoclimatology.

35-1561
Sedimental process in Harding Lake.
Kajihara, M., et al. Climatic changes in the interior Alaska, report of the Alaskan Paleolimnology Research Project-- 1977/78/79 Edited by K Nakao, Sapporo, Hokkaido University, Laboratory of Hydrology, Mar. 1980, p 24-35, 2 refs.
Nakao, K., Fujino, K., Oike, T
Lakes, Bottom sediment, Sedimentation, Suspended sediments, Turbidity, Water temperature.

35-1562
Quaternary geologic and geomorphologic history around the Harding Lake, Alaska, U.S.A.
Yokoyama, T., et al. Climatic changes in the interior Alaska; report of the Alaskan Paleolimnology Research Project -1977/78/79. Edited by K Nakao, Sapporo, Hokkaido University, Laboratory of Hydrology, Mar. 1980, p.45-53, 3 refs
Tanoue, R
Geological surveys, Geomorphology, Topographic features, Lakes, Quaternary deposits, Profiles, Stratigraphy.

35-1563
Determination of method for snow, ice, and sleet removal; Dual Mode Transit System.
Manzano, B.B., *U.S. Dept. of Transportation Transportation System Division Report*, Jan 1974, TSD-R-740001, 61p., 5 refs.
Snow removal, Ice removal, Electric heating, Antifreezes, Snow melting, Ice melting, Heat transfer, Design.

35-1564
Glaciers in China.
Chi, J., ed. Shanghai, China, Shanghai Scientific and Technical Publishers, 1980, c200p, No microfiche available.
Ren, B., ed.
Mountain glaciers, Glacier ablation, Glacier flow, Glacial deposits, Glacier formation, Glacial rivers, Distribution, Photography.

35-1565
Role of surface glaciation in fluvio-glacial balance of the Arctic. (Rol' nazemnogo oledenenna v vodno-ledovom balanse Arktiki).
Kothakov, V.M., et al. *Akademiia nauk SSSR Izvestiia. Serna geograficheskaia*, July-Aug. 1980, No 4, p 11-21, In Russian 20 refs
Krenke, A N
Glacial hydrology, Land ice, Snow cover distribution, Ice (water storage), Snow water equivalent, Glacier ice, Polar regions, Alimentation, Ablation, Climatic factors, Meteorological charts.

35-1566
Vegetation of the Ust'-Chaun Biological Research Station, West Chukotka. (Flora i rastitel'nost' Ust'-Chaunskogo biologicheskogo statsionara (Zapadnaia Chukotka)).
Galanin, A V., *Botanicheskii zhurnal*, Sep. 1980, 65(9), p 1174-1187, In Russian with English summary 10 refs
Arctic landscapes, Tundra, Steppes, Landscape types, Cryogenic soils, Thermokarst, Vegetation, USSR—Chukotskiy Peninsula.

35-1567
Variations of clay soil strength depending on water saturation. (Zakonomernosti izmenenina prochnostnykh kharakteristik glinistykh gruntov ot stepeni ikh vodonasyshchennaj.
Ivanov, I P., et al. *Leningrad Universitet Vestnik*, Sep 1980, 18(3), p 31-39, In Russian with English summary, 3 refs
Ivanikova, N P., Korobkova, O.P., Nevmchanyi, S.P
Clay soils, Soil strength, Soil water, Hygroscopic water, Soil compaction, Tests, Laboratory techniques.

35-1568
Soil formation and vegetation in alassy of the Lena-Amga interfluve, their use and preservation. (Nekotorye osobennosti pochvoobrazovanna i kharaktera rastitel'nosti alasov Leno-Angmskogo mezhdurech'ia, ikh ratsional'noe ispol'zovanie i okhranaj.
Desiatkin, R.V., *Leningrad. Universitet Vestnik*, Sep 1980, 18(3), p.72-79, In Russian with English summary 21 refs.
Permafrost structure, Thermokarst lakes, Alassy, Soil formation, Vegetation.

35-1569
Subdivision of the Arctic Ocean into basins. (O podrazdelenii Severnogo Ledovitogo okeana na basseiny).
Klepikov, V V., *Leningrad Universitet Vestnik*, Sep 1980, 18(3), p 114-115, In Russian with English summary, 9 refs
Geography, Hydrography, Arctic Ocean.

35-1570
Geothermal conditions of sedimentary mantle in the Siberian Platform. (Geotermicheskie uslovna osadochnogo chekhla Sibirskoi platformy).
Slavin, V.I., et al, *Akademiia nauk SSSR Izvestiia Serna geologicheskaia*, May 1980, No.5, p 5-13, In Russian 13 refs
Tychmo, N IA., Baboshina, O A.
Sediments, Heat flux, Geothermy, Permafrost distribution, Frozen rock temperature, Permafrost depth, Permafrost thickness, Maps, USSR—Siberia.

35-1571
Solar radiation absorption by snow, firn and ice in the Aktru glacial basin (Central Altai). (O pogloshchenn solnechnoi radiatsii snegom, firnom, l'dom v lednikovom basseine Aktru (Tsentral'nyi Altai)).
Belova, N I., et al, *Gliatsiologna Altaia*, 1970, Vol 6, p 53-64, In Russian. 13 refs
Dushkin, M A
Glacier ice, Snow cover, Firn, Radiation absorption, Solar radiation.

35-1572
Perennially frozen rocks and hydrologic conditions of the Chuysk steppe (Altai Mountains). ("Vechnaia" merzlota i gidrogeologicheskie uslovna Chuiskoi stepi (gornyi Altai)).
Maloletko, A M., *Gliatsiologna Altaia*, 1970, Vol.6, p.204-212, In Russian 7 refs.
Cryogenic soils, Alpine landscapes, Steppes, Permafrost depth, Permafrost thickness, Permafrost hydrology, Permafrost distribution.

35-1573
Transitional forms of glaciation. (O perekhodnykh formakh oledenennaj.
Ivanov, N I., *Gliatsiologna Altaia*, 1970, Vol.6, p.245-263, In Russian 4 refs
Nivation, Snow accumulation, Snow depth, Snow stratigraphy, Firn stratification, Metamorphism (snow), Glacier formation, Glacier flow.

35-1574
Icy routes (Ledovymi trassami).
Nikolaeva, A G., et al, Leningrad, Gidrometeoizdat, 198?, 28p, In Russian with English table of contents enclosed. 22 refs.
Khromtsova, M S
Ice navigation, Icebreakers, Ice breaking, Ship icing, Sea ice, Drift, Pressure ridges, Expeditions, Arctic Ocean.

35-1575
Improving watertightness of large panel buildings. (Uluchshenie vodozashchity krupnopanel'nykh domov).
Omel'chenko, A A., et al, Kiev, Budivel'nik, 1980, 95p, In Russian with English table of contents enclosed 22 refs
Matsiuk, I F., Mirsakov, L M., Teplitskii, L S
Residential buildings, Industrial buildings, Walls, Prefabrication, Large panel buildings, Waterproofing, Windows, Joints (junctions), Sealing, Roofs.

35-1576
Design of heating and ventilation for residential buildings in the Far North. (Proektirovanie otoplenna i ventilatsii zhilykh domov na Krainem Severe).
Liber, I S., Leningrad, Stroizdat, 1980, 191p, In Russian with English table of contents enclosed 20 refs
Residential buildings, Heating, Ventilation, Thermal insulation, Heat loss, Windows, Walls, Roofs, Humidity, Heat transfer.

35-1577
Water supply in populated areas of the North. (Vodosnabzhenie naselennykh punktov na Severe).
Vdovin, IU I., Leningrad, Stroizdat, 1980, 133p., In Russian with English table of contents enclosed 26 refs
Water supply, Surface waters, Ground water, Water intakes, Water reserves, Permafrost hydrology, Water pipelines, Design, Thermal insulation, Ice (water storage).

35-1578
Feasibility of helicopter support Seek Frost.
Merna, R L., *Hanscom Air Force Base Electronic Systems Division Report*, May 1980, ESD-TR-80-120, 54p, ADA-089 505
Helicopters, Aircraft icing, Ice loads, Sea ice, Drift, Tundra, Microwaves

35-1579
Icing characteristics of low altitude, supercooled layer clouds, Revision.
Jeck, R K., *U S Naval Research Laboratory Interim report*, May 1980, Feb -Oct 1980, 68p, ADA-088 892, 23 refs
Supercooled clouds, Ice formation, Cloud droplets, Air temperature, Altitude.

35-1580
Engine cold-starting and warm-up tests. *U S Army Test and Evaluation Command, Aberdeen Test Operations Procedure Final report*, July 1980, TOP-2-650, 12p ADA-089 535
Cold weather operation, Engines, Military equipment, Low temperature tests.

35-1581
Oceanographic measurements in the Chukchi Sea, April-August 1977.
Garrison, G R., et al, *Washington (State) University Applied Physics Laboratory Technical report*, Sep 1979, APL-UW-7824, 131p ADA-088 841
Welch, M L., Shaw, J T
Sea ice distribution, Oceanographic surveys, Salinity, Water flow, Water temperature, Ocean currents, Remote sensing.

35-1582
Reflectance of snow at millimeter wavelengths.
Anderson, R C., et al, Gainesville, University of Florida, Dept of Engineering Sciences, May 1980, 40p, ADA-089 742, 13 refs
MacFeely, K J
Snow optics, Remote sensing, Ice crystals, Grain size, Mathematical models, Wave propagation.

35-1583
Proceedings, Vol.1.
Army Science Conference 12th, West Point, N.Y., U.S. Military Academy, June 17-20, 1980, Washington, D C., Department of the Army, July 21, 1980, 516p, ADA-090 350, Refs passim For selected papers see 35-1584 through 35-1587
Ice crossings, Airplanes, Tracked vehicles, Snow cover, Explosion effects, Meetings.

35-1584
Impact fuse performance in snow (Initial evaluation of a new test technique).
Aitken, G W , et al. MP 1347, Army Science Conference 12th, West Point, N Y , U S Military Academy, June 17-20, 1980 Proceedings, Vol 1, Washington, D C., Department of the Army, July 21, 1980, p 31-45, ADA-090 350, 8 refs
Richmond, P W , III, Albert, D G
Snow cover, Snow loads, Explosion effects, Impact strength, Projectile penetration, Velocity, Tests.

35-1585
Low temperature X-ray diffraction investigation of embrittled minimum signature Chaparral propellant.
Alley, B J , Jr , Army Science Conference, 12th, West Point, N Y , U S Military Academy, June 17-20, 1980 Proceedings, Vol 1, Washington, D C , Department of the Army, July 21, 1980, p 77-90, ADA-090 350, 5 refs.
Airplanes, Engines, Low temperature tests, Thermal stresses, Fatigue (materials), Temperature effects, X ray diffraction.

35-1586
Terrain-vehicle mod. . for analysis of steerability of tracked vehicles.
Baladi, G.Y , et al, Army Science Conference, 12th, West Point, N.Y , U S Military Academy, June 17-20, 1980 Proceedings, Vol.1, Washington, D C , Department of the Army, July 21, 1980, p 135-149, ADA-090 350, 7 refs
Rohani, B
Tracked vehicles, Soil strength, Trafficability, Interfaces.

35-1587
Evaluation of ice-covered water crossings.
Dean, A.M , Jr., MP 1348, Army Science Conference, 12th, West Point, N.Y , U S Military Academy, June 17-20, 1980 Proceedings, Vol.1, Was'ington, D C , Department of the Army, July 21, 1980 p 443-453, ADA-090 350, 11 refs
Ice crossings, Ice cover strength, Bearing strength, Floating ice, Ice cover thickness, Measuring instruments.

35-1588
Development of a new type of model ice for refrigerated towing basins.
Timco, G W , et al, *National Research Council, Canada Mechanical engineering report*, Jun. 1980, DME-MD-55, 31p , ADA-090 200, In English with French summary 36 refs
Lane, J F.
Sea ice, Ice models, Ice mechanics, Offshore structures, Doped ice, Tests.

35-1589
Air deployed oceanographic mooring (ADOM). *New Hampshire University, Durham Marine Systems Engineering Laboratory Final report*, Feb 1980. Mar 1, 1979-Feb 28 1980, 77p , ADA-088 569, 8 refs
Sea ice, Ice conditions, Remote sensing, Airborne equipment, Drift, Pressure ridges, Ice structure, Oceanographic surveys.

35-1590
Radar clutter models at 95GHz.
Hayes, R D , *U S Army Armament Research and Development Command, Dover, N J Fire Control and Small Caliber Weapon Systems Laboratory Memorandum report*, Sep 1980, ARSCD-MR-80001, 13p , ADA-089 986, 8 refs
Snow cover distribution, Radar echoes, Wave propagation, Measuring instruments.

35-1591
Investigation of the heat transfer at the liquid/solid interface of rapidly melting ice.
Fredley, J E , *Pennsylvania, State University Applied Research Laboratory University Park Technical memorandum*, Mar 1980, ARL/PSU/TM-80-94, 87p , ADA-089 099, M.S thesis 41 refs.
Ice melting, Heat transfer, Liquid solid interfaces, Artificial melting, Ice heat flux, Velocity, Temperature effects.

35-1592
Mathematical model for dynamics of pack ice in the Arctic Ocean and its surrounding seas.
Pan, S L., et al, *U S Naval Ocean Research and Development Activity Technical note*, Apr 1976-Mar 1977, NORDA-1 N-4, 23p , ADA-088 738, 20 refs
Li, H
Pack ice, Ice mechanics, Drift, Ice models, Sea ice, Mathematical models.

35-1593
Analysis of Cl-36 in environmental water samples using an electrostatic accelerator.
Elmore, D , et al, *Nature*, Jan. 4, 1979, 277(5691), p.22-25, 23 refs
Isotopes, Radioactive isotopes, Water chemistry, Impurities, Snow impurities, Cores, Ice cores, Antarctica, Greenland.
The Rochester MP tandem Van de Graaff accelerator system was used successfully as an ultrasensitive mass spectrometer in the determination of 36Cl Cl ratio in silver chloride (AgCl) precipitates from 6 different natural water samples Measurements fell in the range of 2-12X10-12 with a background level below 3X10-15 Seventy milligrams of AgCl and 1 5 of water were used for each sample A diagram of the apparatus used for 36Cl measurements and a description of its operation are given The method described can be used to measure 36Cl concentrations in a 100 mg sample of AgCl with an uncertainty of 310 in 31 hr These results are adequate for studies using 36Cl as a tracer in groundwater hydrology, analyzing deep ice core samples from Greenland and Antarctica and estimating cosmic ray containment time within the Galaxy (Auth)

35-1594
Pressure ridges and ice resistance to moving ships. (Torosistost' i soprotivlaemost' l'da dvizhushchemusia sudnu).
Sergeev, G.N , et al, *Meteorologiia i gidrologiia*, Oct 1980, No 10, p 100-104, In Russian with English summary 10 refs
Khromov, IU.N
Ice cover thickness, Pressure ridges, Ice cover strength, Ice breaking, Icebreakers, Ice friction.

35-1595
Determination of ice viscosity under field conditions. (K opredeleniiu viazkosti l'da v naturnykh usloviiakhj.
Kozitskii, I E., *Meteorologiia i gidrologiia*, Oct. 1980, No 10 p 107-109, In Russian 2 refs
Rheology, Ice mechanics, Viscosity, Ice cover, Mathematical models.

35-1596
Design of residential and public buildings for the first climatic zone. (Voprosy proektirovaniia zhilykh i obshchestvennykh zdanii v usloviiakh I klimaticheskoi zony).
Belova, G.M , ed. Leningrad, 1973, 75p , In Russian
Fo individual papers see 35-1597 through 35-1603
Refs passim.
Residential buildings, Foundations, Permafrost beneath structures, Ground ice, Piles, Frozen fines, Sands, Clays, Loams, Frost heave, Ground thawing, Settlement (structural).

35-1597
Foundation design for fine-grained sands and deep seasonal freezing. (Osobennosti proektirovaniia fundamentov na melkikh peskakh v usloviiakh glubokogo sezonnogo promerzaniia).
Dokuchaev, V V , et al, Voprosy proektirovaniia zhilykh i obshchestvennykh zdanii v usloviiakh I klimaticheskoi zony (Design of residential and public buildings for the first climatic zone) edited by G M. Belova, Leningrad, 1973, p 3-11, In Russian. 5 refs
Tikhonov, V P , Zolotar', A I
Buildings, Foundations, Frozen fines, Sands, Seasonal freeze thaw, Frost heave, Frost penetration, Design.

35-1598
Studying clay shale deformation during thawing. (Issledovaniia deformativnosti glinistykh slantsev pri ottaivaniij.
Dokuchaev, V V , et al, Voprosy proektirovaniia zhilykh i obshchestvennykh zdanii v usloviiakh I klimaticheskoi zony (Design of residential and public buildings for the first climatic zone) edited by G M Belova, Leningrad, 1973, p 12-22, In Russian 5 refs.
Grishin, P A , Nikitin, IU A
Foundations, Permafrost beneath structures, Clays, Ground thawing, Settlement (structural), Buildings.

35-1599
Influence of the transverse cross-section form of metal piles on their bearing capacity in permafrost. (Vliianie formy poperechnogo secheniia metallicheskikh svai, pogruzhennykh v vechnomerzlyi grunt, na ikh nesushchuiu sposobnost'j.
Gerasimov, A S., Voprosy proektirovaniia zhilykh i obshchestvennykh zdanii v usloviiakh I klimaticheskoi zony (Design of residential and public buildings for the first climatic zone) edited by G.M Belova, Leningrad, 1973, p.23-27, In Russian 1 ref
Foundations, Piles, Permafrost beneath structures, Buildings, Bearing strength.

35-1600
Mechanical properties of saline frozen grounds. (Mekhanicheskie svoistva zasolennykh merzlykh gruntov).
Markin, K.F , Voprosy proektirovaniia zhilykh i obshchestvennykh zdanii v usloviiakh I klimaticheskoi zony (Design of residential and public buildings for the first climatic zone) edited by G M Belova, Leningrad, 1973, p 28-49, In Russian. 18 refs
Foundations, Permafrost beneath structures, Saline soils, Clay soils, Soil mechanics, Buildings.

35-1601
Deformation and failure of frozen saline sandy loam. (Osobennosti deformirovaniia i razrusheniia merzloi zasolennoi supesi).
Aksenov, V I , Voprosy proektirovaniia zhilykh i obshchestvennykh zdanii v usloviiakh I klimaticheskoi zony (Design of residential and public buildings for the first climatic zone) edited by G M Belova, Leningrad, 1973, p 50-54 In Russian 6 refs
Foundations, Deformation, Permafrost bases, Frozen fines, Saline soils, Loams, Soil strength, Bearing strength.

35-1602
Strength and deformation properties of sandy loam with high ice content. (Prochnost i deformativnost' sil'nol'distoi supesi).
Artemov, Z.P., Voprosy proektirovaniia zhilykh i obshchestvennykh zdanii v usloviiakh I klimaticheskoi zony (Design of residential and public buildings for the first climatic zone) edited by G.M Belova, Leningrad, 1973, p 55-61, In Russian. 3 refs
Foundations, Frozen fines, Loams, Ground ice, Soil strength, Compressive properties, Creep.

35-1603
Determining deformation properties of ground ice. (Opredelenie kharakteristik deformativnosti podzemnogo l'da).
Dokuchaev, V V., et al, Voprosy proektirovaniia zhilykh i obshchestvennykh zdanii v usloviiakh I klimaticheskoi zony (Design of residential and public buildings for the first climatic zone) edited by G.M Belova Leningrad, 1973, p.62-67, In Russian. 4 refs
Sheinkman, D.R
Foundations, Permafrost bases, Ground ice, Settlement (structural), Compressive properties, Viscous flow.

35-1604
Stepping up ship passage through sluices. (Uskorenie propuska sudov cherez shliuzy).
Kluev, V , et al, *Rechnoi transport*, 1980, No 11, p.38-39, In Russian
Gapeev, A
Ice navigation, Rivers, Sluices (hydraulic engineering), Ice floes.

35-1605
Determining propulsive performance of ships in ice. (Dlia opredelenia khodkhosti sudov vo l dakh).
Malyi, P , et al, *Rechnoi transport*, 1980, No 11, p 45, In Russian
Segal, Z
Ships, Ice navigation, Velocity, Analysis (mathematics), Propulsion.

35-1606
Extending the navigation period on rivers. (Prodleme navigatsii na rekakh).
Vinogradova, N , *Rechnoi transport*, 1980 No 10, p 24-25, In Russian
Icebound rivers, Ice navigation, Icebreakers, Ice breaking, Sluices (hydraulic engineering).

35-1607
Performance indices of an individual hydraulic piston pump working on a flooded oil well under winter conditions of West Siberia. (Nekotorye pokazateli raboty individual'noi gidroporshnevoi nasosnoi ustanovki pri ekspluatatsii obvodnennoi neftianoi skvazhiny v zimnikh usloviiakh Zapadnoi Sibiri).
Kazak, A S., *Neftepromyslovoe delo*, 1980, No 7, p 44-45, In Russian
Petroleum industry, Oil wells, Flooding, Pumps, Icing, Cold weather performance.

35-1608
Using dirigibles in pipeline repairs in West Siberia. (Ispol'zovanie dirizhablei dlia avariinogo remonta nefteprovodov v usloviiakh Zapadnoi Sibiri).
Kulikov, V D , *Neftianoe khoziaistvo*, Nov 1980 No.11, p 44-47, In Russian 6 refs
Swamps, Transportation, Petroleum industry, Pipelines, Ground thawing, Dirigibles.

35-1609
Influence of solid phase concentration in drilling mud on mechanical speed of drilling in permafrost. (Vliianie kontsentratsii tverdoĭ fazy v burovom rastvore na mekhanicheskuiu skorost' bureniia v mnogoletnemerzlykh porodakh).
Khomik, M.V., et al. *Neftianoe khoziaĭstvo*. Aug 1980. No 8, p 27-29. In Russian 2 refs
Leonov, E.G., Strogal'shchikov, L.V.
Drilling, Permafrost, Penetration, Drilling fluids, Turbodrills.

35-1610
Peculiarities of developing oil and gas deposits in West Siberia. (Osobennosti razrabotki neftianykh i gazovykh mestorozhdeniĭ Zapadnoĭ Sibiri).
Skorobogatov, V.A., *Neftianoe khoziaĭstvo*. Aug 1980. No 8, p 70-71. In Russian
Meetings, Petroleum industry, Drilling, Well casings, Cements, Wells, Cement admixtures, Permafrost.

35-1611
Changes in heat runoff of Siberian rivers. (Izmeneniia teplovogo stoka sibirskikh rek).
Odrova, T.V., *Priroda*. June 1980. No 6, p 90-93. In Russian
Rivers, Estuaries, Thermal regime, Ice conditions, Heat transfer, Water temperature, Reservoirs, Thermal effects, Arctic Ocean.

35-1612
Soils of Taymyr Peninsula. (Pochvy Taĭmyra).
Vasil'evskaia, V.D., *Moscow. Universitet. Vestnik. Seriia 17 Pochvovedenie*. July-Sep 1980. No 3, p 8-16. In Russian 16 refs
Arctic landscapes, Tundra, Cryogenic soils, Patterned ground, Soil formation, Soil profiles, Permafrost depth, USSR—Taymyr Peninsula.

35-1613
Review of geographic distribution of vascular plants in the Chukot tundra, Pt.1. (Obzor geograficheskogo rasprostraneniia sosudistykh rastenii Chukotskoĭ tundry Soobshchenie 1).
(Urtsev, B.A., et al. *Moskovskoe obshchestvo ispytateleĭ prirody Biulleten' Otdel biologicheskiĭ*. Sep-Oct 1979, 84(5), p 111-122 In Russian with English summary 29 refs
Arctic landscapes, Tundra, Cryogenic soils, Vegetation, USSR—Chukotskiy Peninsula.

35-1614
Review of geographic distribution of vascular plants in the Chukot tundra, Pt.2. (Obzor geograficheskogo rasprostraneniia sosudistykh rastenii Chukotskoĭ tundry Soobshchenie 2).
(Urtsev, B.A., et al. *Moskovskoe obshchestvo ispytateleĭ prirody Biulleten' Otdel biologicheskiĭ*. Nov-Dec. 1979, 84(6), p 74-83, In Russian.
Arctic landscapes, Tundra, Cryogenic soils, Vegetation, USSR—Chukotskiy Peninsula.

35-1615
Refuges of mesophyte relict elements of flora of the northern Okhotsk Sea coast and in the upper Kolyma River Basin. (Ubezhishcha mezofil'nykh reliktovykh elementov flory na severe Okhotskogo poberezh'ia i v basseine verkhnego techeniia Kolymy).
Khokhriakov, A.P., *Moskovskoe obshchestvo ispytateleĭ prirody. Biulleten' Otdel biologicheskiĭ*. Nov-Dec 1979, 84(6), p 84-96. In Russian with English summary 14 refs
Subarctic landscapes, Cryogenic soils, Vegetation, Plant ecology, USSR—Kolyma River.

35-1616
Absorption and scattering of microwaves by separate spherical particles of water and ice. (Pogloshchenie i rasseianie mikroradiovoln otdel'nymi sfericheskimi chastitsami vody i l'da).
Abshaev, M.T., et al. *Nal'chik. Vysokogornyĭ geofizicheskiĭ institut. Trudy*, 1975, Vol 29, p 40-71. In Russian 3 refs.
Rozenberg, V.I., Karmov, Kh.N
Cloud physics, Radio waves, Absorption, Scattering, Cloud droplets, Ice crystals.

35-1617
Crystallization of precipitation droplets. (Nekotorye osobennosti kristallizatsii kapel' osadkov).
Kazankova, Z.P., *Nal'chik. Vysokogornyĭ geofizicheskiĭ institut. Trudy*, 1975, Vol 29, p 72-76. In Russian 9 refs.
Cloud seeding, Nucleating agents, Cloud droplets, Freezing points, Ice crystal growth.

35-1618
Formation of ice crystals on AgI particles through quasi-liquid films. (Obrazovanie ledianykh kristallov cherez kvazizhidkuiu plenku na chastitsakh AgI).
Medalev, Kh.Kh., et al. *Nal'chik. Vysokogornyĭ geofizicheskiĭ institut. Trudy*, 1975, Vol 29, p 107-113. In Russian 11 refs
Adzhiev, A.Kh
Supercooled clouds, Ice formation, Ice nuclei, Nucleating agents, Silver iodide, Water films, Ice crystal growth.

35-1619
Methods of studying hailstone structure. (O metodike issledovaniia stroeniia gradin).
Bartishvili, G.S., et al. *Nal'chik. Vysokogornyĭ geofizicheskiĭ institut. Trudy*, 1975, Vol 29, p 114-121. In Russian 23 refs
Kuvaeva, G.M
Ice growth, Hailstone structure, Supercooled clouds, Hailstones, Ice accretion, Surface structure.

35-1620
Studying hail nuclei in wind tunnels. (Issledovanie zarodyshei gradin v aerodinamicheskoĭ trube).
Tlisov, M.L., et al. *Nal'chik. Vysokogornyĭ geofizicheskiĭ institut. Trudy*, 1975, Vol.29, p 122-139. In Russian 29 refs
Khorguani, V.G
Hail clouds, Ice nuclei, Hailstones, Wind tunnels, Cloud droplets, Supercooled clouds.

35-1621
Hailstone formation under a dry regime and in mixed fractions. (O nekotorykh osobennostiakh obrazovaniia gradin v sukhom rezhime i v smeshannoĭ fraktsii).
Bartishvili, G.S., *Nal'chik. Vysokogornyĭ geofizicheskiĭ institut. Trudy*, 1975, Vol 29, p 140-150. In Russian 10 refs
Hailstones, Ice formation, Hailstone growth, Ice accretion, Ice density, Spongy ice.

35-1622
Effect of crystalline phase on hailstone growth. (O vliianii kristallicheskoĭ fazy na rost gradiny).
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Khorguani, V.G., Tlisov, M.L.
Supercooled clouds, Cloud droplets, Ice crystals, Unfrozen water content, Snow crystals, Hailstone growth.

35-1623
Centrifugal models for studying water seepage in embankments built on flood plains. (Osnovnye printsipy izucheniia fil'tratsii v poĭmennykh nasypiakh metodom tsentrobezhnogo modelirovaniia).
(Akovleva, T.G., *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1979, Vol.646, p.43-54. In Russian. 7 refs
Hydraulic structures, Earth dams, Earth fills, Embankments, Permeability, Railroads, Models.

35-1624
Apparatus for modeling flooded structures. (Apparatura dlia modelirovaniia podtopliaemykh sooruzhenii).
Ivanov, D.I., *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1979, Vol 646, p 55-59. In Russian
Hydraulic structures, Dams, Embankments, Flooding, Seepage, Models.

35-1625
Measuring water seepage characteristics when modeling flooded structures. (Izmerenie kharakteristik fil'tratsii pri modelirovanii podtopliaemykh sooruzhenii).
Ivanov, D.I., *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1979, Vol 646, p 60-65. In Russian 3 refs.
Hydraulic structures, Earth dams, Flooding, Seepage, Models.

35-1626
Cost of foam-plastic covers preventing frost heave. (Stoimost' penoplastovykh protivopuchinnykh pokrytiĭ).
Voitov, S.A., *Moscow. Institut inzhenerov zheleznodorozhnogo transporta. Trudy*, 1979, Vol 646, p 75-84. In Russian.
Soil freezing, Frost penetration, Roadbeds, Frost heave, Thermal insulation, Cellular plastics, Cost analysis.

35-1627
Studying soil geography and landscape geochemistry in the Baykal Amur railroad zone. (Pochvenno-geograficheskie i landshaftno-geokhimicheskie issledovaniia v zone BAM).
Snytko, V.A., ed. Novosibirsk, Nauka 1980. 184p., In Russian For selected papers see 35-1628 through 35-1632 Refs passim.
Landscape types, Taiga, Cryogenic soils, Mountain soils, Soil formation, Baykal Amur railroad, Permafrost distribution, Swamps, Vegetation factors, Charts, Environmental protection, Economic development.

35-1628
Landscape-geochemical regionalization of the Baykal Amur railroad zone. (Landshaftno-geokhimicheskoe raionirovanie zony BAM).
Nechaeva, E.G., et al. Pochvenno-geograficheskie i landshaftno-geokhimicheskie issledovaniia v zone BAM (Studying soil geography and landscape geochemistry in the Baykal Amur railroad zone) edited by V.A. Snytko, Novosibirsk, Nauka, 1980, p 3-11. In Russian 21 refs
Snytko, V.A., Shchetnikov, A.I
Landscape types, Geochemistry, Mapping, Cryogenic soils, Environmental protection, Economic development, Baykal Amur railroad, Taiga, Permafrost distribution, Permafrost hydrology.

35-1629
Soils of the Baykal Amur railroad area west of Lake Baykal. (Pochvy predbaikal'skogo uchastka zony BAM).
Kuz'min, V.A., Pochvenno-geograficheskie i landshaftno-geokhimicheskie issledovaniia v zone BAM (Studying soil geography and landscape geochemistry in the Baykal Amur railroad zone) edited by V.A. Snytko, Novosibirsk, Nauka, 1980, p 11-98. In Russian. 116 refs
Mountain soils, Cryogenic soils, Soil formation, Taiga, Landscape types, Swamps, Permafrost distribution, Baykal Amur railroad, Vegetation, Charts.

35-1630
Soil formation and prospects for economic development of land in the Amur region. (Osobennosti pochvoobrazovaniia i perspektivy ispol'zovaniia zemel'nykh resursov v Amurskoĭ oblasti).
Khismatullin, Sh.D., Pochvenno-geograficheskie i landshaftno-geokhimicheskie issledovaniia v zone BAM (Studying soil geography and landscape geochemistry in the Baykal Amur railroad zone) edited by V.A. Snytko, Novosibirsk, Nauka, 1980, p 98-124. In Russian 115 refs
Taiga, Cryogenic soils, Soil formation, Swamps, Vegetation, Snow cover effect, Permafrost distribution, Frozen ground temperature, USSR—Amur River.

35-1631
Basic features of landscape structure of the Muya intermontane basin. (Osnovnye cherty struktury landshaftnoĭ struktury Muiskoĭ kotloviny).
Nefed'eva, L.G., Pochvenno-geograficheskie i landshaftno-geokhimicheskie issledovaniia v zone BAM (Studying soil geography and landscape geochemistry in the Baykal Amur railroad zone) edited by V.A. Snytko, Novosibirsk, Nauka, 1980, p 125-139. In Russian 26 refs
River basins, Landscape types, Mountain soils, Soil formation, Cryogenic soils, Taiga, Vegetation factors, USSR—Transbaikal.

35-1632
Some biogeochemical parameters of the upper Chara River basin. (O nekotorykh biogeokhimicheskikh parametrakh Verkhne-Charskoĭ kotloviny).
Nechaeva, E.G., et al. Pochvenno-geograficheskie i landshaftno-geokhimicheskie issledovaniia v zone BAM (Studying soil geography and landscape geochemistry in the Baykal Amur railroad zone) edited by V.A. Snytko, Novosibirsk, Nauka, 1980, p 152-162. In Russian. 13 refs
Korotaeva, T.V
River basins, Taiga, Swamps, Biomass, Cryogenic soils, Nutrient cycle, Soil chemistry, USSR—Chara River.

35-1633
Studying temperature fields in natural ground. (Issledovanie temperaturnykh poleĭ v estestvennom grunte).
Bronfenbrener, L.E., et al. *Neftepromyslovoe stroitel'stvo*, 1980, No 12, p 8-10. In Russian
Semerikov, A.V
Frozen ground temperature, Permafrost thermal properties, Permafrost transformation, Permafrost beneath structures, Permafrost control, Active layer, Mathematical models.

35-1634
Testing peat soils with cylindrical- and flat-base dies. (Rezul'taty ispytanii torfianykh gruntov shtampami s tsilindricheskoi i ploskoi podoshvami).
Dimov, L A , et al *Neftepromyslovoe stroitel'stvo*, 1980, No 12, p 12-14, In Russian
Morozov, V N , Rudometkin, V V
Swamps, Peat, Soil strength, Tests, Pipelines.

35-1635
Anchors with thermo-chucks for holding pipelines in frozen ground. (Zakreplenie truboprovodov v merzlykh gruntakh ankerami s termozatvorami).
Trofimov, A S , *Stroitel'stvo truboprovodov*, Dec 1980, No 12, p 13-14, In Russian
Pipelines, Anchors, Permafrost control, Petroleum industry.

35-1636
Design and construction of hydroelectric developments under severe climatic conditions. (Osobennosti proektirovaniia i stroitel'stva gidrouzlov v surovykh klimaticheskikh usloviiakh).
Beliakov, A A , et al *Energeticheskoe stroitel'stvo*, Dec 1980, No 12, p 68-72, In Russian 8 refs
Pravdivets, IU P
Electric power, Hydraulic structures, Dams, Industrial buildings, Permafrost beneath structures, Cold weather construction.

35-1637
Stabilization of earth structure slopes under severe climatic conditions. (Zakreplenie otkosov zemlianykh sooruzhenii v surovykh klimaticheskikh usloviiakh).
Pal'kin, IU S , et al. *Gidrotekhnika i melioratsia*, Nov 1980, No 11, p 30-32, In Russian
Stafeev, P F Gadilev, E O
Environmental protection, Slope stability, Permafrost transformation, Slope processes, Roads, Embankments, Dams.

35-1638
Design and operation of subsurface drainage in soil freezing zones. (Osobennosti proektirovaniia i deistviia zakrytogo drenazha v zone promerzaniia gruntov).
Shtykov, V I , *Gidrotekhnika i melioratsia*, Nov 1980, No 11, p 53-56, In Russian 10 refs
Land reclamation, Subsurface drainage, Soil freezing, Seasonal freeze thaw, Design.

35-1639
Design and construction of earth-fill overflow dams. (Opyt proektirovaniia i stroitel'stva gruntovykh vodosbrosnykh plotin).
Ilyets, IU P , *Gidrotekhnika i melioratsia*, Oct 1980, No 10, p 39-41, In Russian 11 refs
Hydraulic structures, Earth dams, Concrete structures, Reinforced concretes, Prefabrication, Flood control.

35-1640
Working tool of the ETTs-163M for wet soil excavation. (Rabochii organ ETTs-163M dlia razrabotki gruntov povyshennoi vlazhnosti).
Korshikov, A A , et al, *Gidrotekhnika i melioratsia*, Oct 1980, No 10, p 46-47, In Russian 3 refs
Mironov, V I
Land reclamation, Swamps, Drains, Equipment, Design.

35-1641
Organizing land reclamation work in freezing weather (in the Leningrad region). (Organizatsiia meliorativnykh rabot v zimnee vremia (na primere Leningradskoi oblasti)).
Chernik, M B , *Gidrotekhnika i melioratsia*, Oct 1980, No 10, p 59-61, In Russian.
Land reclamation, Earthwork, Cold weather construction, Drainage, Channels (waterways), Frozen ground.

35-1642
Determining thickness of subgrades made of earth weakly- or non-susceptible to frost heave (for clay earth dams in West Siberia). (Opredelenie tolshchiny podushki iz nepuchinistogo ili slabopuchinistogo grunta (dlia plotin otsypaemykh iz glinistykh gruntov v uslovniakh Zapadnoi Sibiri)).
Edapin, V A , *Gidrotekhnika i melioratsia*, Sep 1980, No 9, p 28-29, In Russian. 4 refs
Hydraulic structures, Clay soils, Earth dams, Foundations, Subgrade preparation, Frost heave, Permafrost beneath structures.

35-1643
Preventing the freezing of cargo. (Bor'ba s primerzaniem gruzov).
Sharapov, V , et al, *Morskoi flot*, 1980 No 11, p 17, In Russian
Korkhov, V , Kuvaldin, V
Ships, Frozen cargo, Frost protection, Electric heating.

35-1644
Satellites help define icing areas. (Opredelat' raiony obledeneniia pomogaiut sputniki).
Bezuglyi, I , et al, *Morskoi flot*, 1980 No 11, p 28, In Russian
Rebenkova, O
Ice navigation, Ship icing, Ice reporting, Spaceborne photography, Aerial surveys.

35-1645
Comfortable accommodations for gas industry workers. (Blagoustroennoe zhil'e rabotnikam gazovoi promyshlennosti)
Gudz', A G , *Gazovaia promyshlennost'*, Aug 1980, No 9, p 6-7, In Russian
Residential buildings, Houses, Petroleum industry, Natural gas, Gas pipelines.

35-1646
Accelerated tempo of road construction. (Stroitel'stvu dorog - operezhaiushchie tempy).
Shemraev, G A , et al, *Gazovaia promyshlennost'*, Aug 1980, No 8, p 10-11, In Russian
Indin, B Sh
Petroleum industry, Roads, Bridges, Pavements, Reinforced concretes, Swamps, Peat, Permafrost beneath structures, Construction materials.

35-1647
Basic types of foundation design for buildings and underground structures in 1981-1985. (Ob osnovnykh tipakh konstruktsii fundamentov zdanii i podzemnykh sooruzhenii v 1981-1985 gg), *Bulleten' stroitel'noi tekhniki*, Oct 1980, No 10, p 7-9, In Russian
Residential buildings, Industrial buildings, Underground facilities, Foundations, Piles, Concrete structures, Permafrost beneath structures.

35-1648
Frost resistance of concretes of different strengths. (Morozostoikost' betona raznoi prochnosti).
Mironov, S A , et al, *Beton i zhelezobeton*, Oct 1980, No 10, p 14-16, In Russian 4 refs
Ivanova, O S , [Artiushkina, S Kh , Zhuravleva, L E
Winter concreting, Concrete aggregates, Cements, Concrete admixtures, Concrete freezing, Concrete strength.

35-1649
Influence of superplasticizers on concrete properties. (Vliianie superplastifikatorov na svoistva betona).
Chumakov, IU M , et al, *Beton i zhelezobeton*, Oct 1980, No 10, p 16-17, In Russian. 5 refs
Concrete structures, Concrete placing, Concrete admixtures, Frost resistance.

35-1650
Joint effect of loading and subzero temperature on deformation of bending elements. (Sovmestnoe vliianie nagruzki i otritsatel'noi temperatury na deformativnost' izgibaemykh elementov).
Gorchakov, G I , et al, *Beton i zhelezobeton*, Sep 1980, No 9, p 7-9, In Russian 3 refs
Guzeev, E A., Seilanov, L A.
Concrete structures, Reinforced concretes, Concrete freezing, Deformation, Freeze thaw cycles, Cold chambers, Test equipment.

35-1651
Quick method of determining frost resistance of concrete. (Sposob uskorennogo opredeleniia morozostoikosti betona).
Piralov, I S , et al, *Beton i zhelezobeton*, Sep 1980, No 9, p 16, In Russian 3 refs
Nevskii, V A , Il'evskii, IU A
Concretes, Freeze thaw cycles, Concrete freezing, Mathematical models

35-1652
Airport pavements of fine-grained concrete. (Aerodromnoe pokrytie iz melkozernistogo betona).
Kliuchnikov, G IA , et al, *Beton i zhelezobeton*, Sep 1980, No 9, p 25, In Russian
Kravchul', I I , Krasnyi, I M , Isaluk, I G
Airports, Pavements, Permafrost beneath structures, Concrete aggregates, Concrete admixtures, Concrete freezing.

35-1653
Combined use of lightweight and cellular concretes in large panel construction. (Kombinirovannoe primenenie legkikh i iacheistykh betonov v krupnopanel'nom domostroenii).
Rogatin, IU A , et al, *Beton i zhelezobeton*, Sep 1980, No 9, p 37-38, In Russian 5 refs
Fomicheva, E N
Lightweight concretes, Cellular concretes, Walls, Prefabrication, Large panel buildings, Thermal insulation, Cold weather performance, Cost analysis.

35-1654
Frost weathering of cellular concrete. (Osobennosti moroznogo razrusheniia iacheistogo betona).
Aleksandrovskii, S V , et al, *Beton i zhelezobeton*, Sep 1980, No 9, p 41-42, In Russian
Shtan'ko, A E
Cellular concretes, Buildings, Walls, Freeze thaw cycles, Frost shattering.

35-1655
Preventing the icing of stationary gas-turbine plants. (Bor'ba s obledeneniem statsionarnykh gazoturbinnykh ustanovok).
Kuznetsov, A L , et al, Leningrad, Nedra 1980 120p , In Russian with English table of contents enclosed 16 refs
Kuznetsov, L A
Gas pipelines, Compressors, Icing, Ice detection, Equipment.

35-1656
Solar tracks in the snow.
Olson, S , *Science news*, Nov 15, 1980, 118(20), p 313, 316
Ice cores, Chemical analysis, Solar activity.
The writer reports on the research on solar activity by E J Zeller and B C Parker She tells of the chemical analysis of antarctic ice cores for nitrate accumulation and of how the two scientists have interpreted the data, made correlations between nitrate accumulation climate and atmospheric circulation patterns Predicting future solar activity and resulting Earth climate changes may be a possibility

35-1657
Arctic sea ice decay simulated for a CO2-induced temperature rise.
Parkinson, C L , et al, *Climatic change*, 1979, 2(2), p 149-162, Refs p 160-162
Kellogg, W W
Sea ice, Ice deformation, Heat flux, Carbon dioxide, Temperature effects, Air temperature, Models

35-1658
Reproductive strategies of pioneering alpine species: seed production, dispersal, and germination.
Marchand, P J , et al, *Arctic and alpine research*, Aug 1980, 12(2), p 137-146, 18 refs
Roach, D A
Alpine tundra, Vegetation, Growth.

35-1659
Himalayan and Trans-Himalayan glacier fluctuations and south Asian monsoon record.
Mayewski, P A., et al, *Arctic and alpine research*, May 1980, 12(2), p 171-182, 17 refs
Pregent, G P , Jeschke, P A
Mountain glaciers, Glacier oscillation, Glacier flow, Wind factors, Atmospheric circulation, Meteorological factors.

35-1660
Freeze-thaw activity at a nivation site in northern Norway.
Hall, K , *Arctic and alpine research*, Aug 1980, 12(3), p 183-194, 38 refs
Freeze thaw cycles, Frozen rocks, Snow cover effect, Nivation, Air temperature.

35-1661
Glacier-rock glacier transition in the southwest Yukon Territory, Canada.
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Lake ice, Hydrology, Ice breakup, Snowmelt, Continuous permafrost.

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Tundra, Palynology, Sediments, Lacustrine deposits, Radioactive age determination.

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Slope stability, Ground thawing, Ground ice, Freeze thaw tests, Subsurface investigations, Slope processes, Experimentation.

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Clays, Soil creep, Soil mechanics, Stresses, Computerized simulation, Mathematical models.

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Effects of natural convection in the melting region around a heated horizontal cylinder.
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35-1678
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35-1684
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35-1687
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35-1688
Glacial processes.
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Glacial erosion, Abrasion, Glacial geology, Glacial deposits, Glacier flow, Ice temperature, Ice cover thickness, Boreholes, Meltwater, Sediments, Antarctica—Byrd Station.
In this review following definitions of cold and temperate glaciers which emphasize the variance of the pressure melting point as the distinguishing feature between the two, basic glacial processes are set forth and discussed The several facets of erosion of the underlying bedrock by moving ice are identified as distinct entities abrasion, crushing, fracturing joint-block removal subglacial meltwater Entrainment and transport of debris produced by erosion is necessary for continued erosion The various kinds of debris and various modes of moving it from place to place within the glacial environment are described Glacial till is one of the most varied of all deposits and a major portion of the chapter describes how these depositions are made basal supraglacial and marginal processes and structural changes Numerous tables, charts, and diagrams amplify the textual material and many examples of present day glacial process are given, including some in Antarctica particularly at Byrd Station

35-1689
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Remote sensing, Spacecraft, Temperature variations, Ice sheets, Climatic changes.
Results of measurements of terrestrial radiation in the centimeter-range channels of Cosmos-243 (Sept 1968) and in the 155-cm channel of Nimbus-5 (Dec 1972-1973) are compared by using continental regions with similar covers (North Africa, Australia), regions containing humid sectors (central part of South America Central Africa), and glaciated sectors of Antarctica A comparison of the measurements made on the two satellites shows a variation of climatic conditions on the continent of Africa over the 5 yr period The degree of blackness of the continental glaciers of Antarctica in the wavelength range of 0.8-1.55 cm had anomalously low values (0.7-0.8) apparently as a result of the total scattering of UHF radiation in the upper layer of the glaciers Radio brightness temperature measurements of the Greenland glaciers over large areas gave comparable values for both experiments. The anomalously low radio brightness temperatures of the Ross, Western and Lazarev Shelf glaciers detected on Cosmos-243 did not occur on Nimbus 5

35-1691
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Sludges, Waste disposal, Agriculture, Land reclamation, United States—Alaska.

35-1693
Natural revegetation of dredge tailings at Fox, Alaska.
Holmes, K W , *Agroborealis*, Jan 1981, Vol 13, p.26-29 10 refs
Revegetation, Environmental impact, Dredging, Tailings.

35-1694
Responses of Arctic tundra to intensive muskox grazing.
McKendrick, J D , *Agroborealis*, Jan 1981, Vol 13, p 49-55, 5 refs
Tundra, Vegetation, Grazing, Environmental impact, Animals.

35-1695
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Mitchell, W W , *Agroborealis*, Jan 1981, Vol 13, p 56-58, 19 refs
Grasses, Revegetation, Tundra.

35-1696
On the determination from Raman spectra of the polarizability derivative with respect to the O-D bond stretching coordinate in the ices.
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Francis, B.F
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Dubnov, IU D , Merenkov, N D
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35-1698
Ground freezing halts sewer collapse. *American city and county*, Sep 1980, 95(9), p.85
Soil freezing, Artificial freezing, Pipelines, Sewage, Maintenance, Brines, Clays.

35-1699
Work-camp living complexes for the North. [Vakhtennye zhilye kompleksy dlia Severa],
Zimin, L.I , et al, Leningrad, Stroĭizdat, 1978, 152p , In Russian with English table of contents enclosed 26 refs.
Lazareva, V G
Residential buildings, Prefabrication, Modular construction, Permafrost beneath structures, Construction materials.

35-1700
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Exogenic geologic processes and phenomena (Southern Yakutia). [Ėkzogennye geologicheskie protsessy i iavlenia (IUzh , IAkutiia)],
Ospennikov, E N , et al, Moscow, Universitet, 1980, 227p , In Russian with English summary Refs p 216-224
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Economic development, Engineering geology, Geocryology, Cryogenic soils, Soil formation, Permafrost distribution, Permafrost structure, Permafrost hydrology, Naleds, Rock streams, Swamps, Frost heave, Thermokarst, Maps, USSR—Yakutia.

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Ermikov, V D , et al, *Geografiia i prirodnye resursy*, July-Sep 1980, No 3, p 3-9, In Russian 11 refs
Luchitskiĭ, I.V
Petroleum industry, Environmental protection, Pollution, Tundra, Forest tundra, Taiga, Swamps.

35-1703
Impact of industrial activities on northern landscapes and their protection. [Antropogennoe vozdeistvie na landshafty Severa i meropriiatiia po ikh zashchite],
Pavlov, A.V., *Geografiia i prirodnye resursy*, July-Sep 1980, No.3, p.23-28, In Russian. 17 refs
Environmental protection, Economic development, Cryogenic soils, Soil erosion, Revegetation, Tundra, Forest tundra, Taiga.

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Odintsov, M M , Trzhtsinskiĭ, IU.B
Natural resources, Permafrost distribution, Engineering geology, Baykal Amur railroad, Mining, Electric power, Construction.

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Long-period soil temperature variations in the dark conifer taiga of the Angara River area. [Mnogoletnie kolebaniia temperatury pochvy v temnokhvoĭnoĭ taige Priangar'iia],
Krauklis, A.A , et al, *Geografiia i prirodnye resursy*, July-Sep 1980, No.3, p 61-70, In Russian 12 refs
Kremer, L.K
Taiga, Permafrost distribution, Cryogenic soils, Soil temperature, Temperature variations.

35-1706
Trends in investigating ecology and environment protection of East Siberian water bodies. [Napravlenia ekologicheskikh i prirodookhrannykh issledovanii vodoemov Vostochnoĭ Sibiri],
Kozhova, O.M., *Geografiia i prirodnye resursy*, July-Sep. 1980, No 3, p 96-104, In Russian. 16 refs
Lakes, Rivers, Hydrology, Ecology, Landscape types, Permafrost distribution, Cryogenic soils, Vegetation, Human factors, Environmental protection.

35-1707
Cartographic-statistical method of studying interrelations among the components of natural environments in the Chita region. [Izuchenie vzaimosviazi prirodnykh komponentov kartografo-statisticheskim metodom (na primere Chitinskoĭ oblasti)],
Geleta, I.F., et al, *Geografiia i prirodnye resursy*, July-Sep 1980, No.3, p.114-124, In Russian 17 refs
Mart'ianova, G.N., Nefed'eva, L G., Cherviakov, V A
Landscape types, Permafrost distribution, Alpine tundra, Taiga, Steppes, Cryogenic soils, Vegetation, Ecosystems, Plant ecology, Biomass, Mapping, Charts, USSR—Chita.

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Achuff, P.L., et al, *Canadian journal of soil science*, Aug. 1980, 60(3), p.579-581, 7 refs
Coen, G M.
Cryogenic soils, Permafrost distribution, Alpine landscapes, Geomorphology, Slope orientation, Forest soils, Soil temperature, Air temperature.

35-1709
Investigation of weathering in some arctic-alpine soils on the northeast flank of Oksskolten, north Norway.
Ellis, S., *Journal of soil science*, June 1980, 31(2), p.371-385, 42 refs.
Weathering, Alpine landscapes, Mountains, Mineralogy, Slope orientation, Frozen ground, Geomorphology, Glacial deposits, Soil water, Frost action.

35-1710
Evaluation of differential pulse anodic stripping voltammetry at a rotating glassy carbon electrode for the determination of cadmium, copper, lead and zinc in antarctic snow samples.
Landy, M P., *Analytica chimica acta*, Dec 1, 1980, 121, p 39-49, 25 refs
Snow impurities, Chemical analysis.
A procedure is described for the determination without preconcentration of Cd, Cu, Pb and Zn in Antarctic snow, based on differential pulse anodic stripping voltammetry at a rotating glassy carbon electrode with in situ mercury plating Thirty four surface snow samples from Adelaide Island in the Antarctic Peninsula demonstrate the scope of this method and allow an assessment of local heavy metal sources such as the rock the sea and a manned base The zinc data are affected by contact contamination but concentrations as low as 0.005 < 0.02 and 0.05 ng g were measured for Cd Cu and Pb respectively (Auth)

35-1711
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Foundations, Buildings, Settlement (structural), Frost heave, Saline soils, Clay soils, Earthquakes, Swamps, Peat, Earth fills.

35-1712
Recommended practice of using chemical means of preventing frost heave of foundations built on perennially frozen ground. [Rekomendatsii po primeneniiu khimicheskikh sredstv zashchity ot puchenia fundamentov, vozvodimykh na vechnomerzlykh gruntakh],
Moscow Nauchno-issledovatel'skiĭ institut osnovanii i podzemnykh sooruzhenii, Moscow, Stroĭizdat, 1974, 17p , In Russian with English table of contents enclosed
Foundations, Permafrost beneath structures, Frost heave, Manuals.

35-1713
Instructions for designing caissons lowered in thixotropic sleeves. [Instruktsiia po proektirovaniiu opusknykh kolodtsev, pogruzhaemykh v tiksotropnoĭ rubashke],
Russia Gosudarstvennyĭ komitet po delam stroitel'stva, Moscow, Stroĭizdat, 1976, 39p , SN 476-75, In Russian with English table of contents enclosed
Foundations, Caissons, Thixotropic sleeves, Design, Standards.

35-1714
Temporary instructions for designing walls and water impervious screens accordi.g to the "wall-in-the-ground" method. [Vremennaia instruktsiia po proektirovaniiu sten sooruzhenii i protivofiltratsionnykh zaves, ustraivaemykh sposobom "stena v grunte"],
Russia Gosudarstvennyĭ komitet po delam stroitel'stva, Moscow, Stroĭizdat, 1976, 33p , SN 477-75, In Russian with English table of contents enclosed
Earthwork, Underground facilities, Walls, Supports, Anchors, Trenching, Impervious screens.

35-1715
Bases and foundations. [Osnovaniia i fundamenty],
Russia Gosudarstvennyĭ komitet po delam stroitel'stva, Stroitel'nye normy i pravila Chast' III, Gl 9 Pravila proizvodstva i priemki rabot (Construction norms and rules Part III, Chapter 9, Rules for conducting and accepting work), Moscow, Stroĭizdat 1976, 96p , SNiP III-9-74, In Russian with English table of contents enclosed
Buildings, Foundations, Caissons, Soil compaction, Soil stabilization, Cements, Resins, Piles, Standards, Design.

35-1716
Manual for the erection, without heating, of monolithic complex structures of brick buildings in East Siberia in areas of 7-8 point earthquake magnitude. [Rukovodstvo po vozvedeniiu bez progreva monolitnykh kompleksnykh konstruktsii kirpichnykh zdanii stroiashchikhsia v Vostochnoĭ Sibiri s seismichnost'iu 7-8 ballov],
Moscow Tsentral'nyĭ nauchno-issledovatel'skiĭ institut stroitel'nykh konstruktsii, Moscow, Stroĭizdat, 1976, 32p , In Russian with English table of contents enclosed
Buildings, Walls, Bricks, Reinforced concretes, Cold weather construction, Mortars, Cement admixtures, Concrete admixtures, Earthquakes.

35-1717
Concrete and reinforced concrete cast-in-place structures [Betonnye i zhelezobetonnye konstruktsii monolitnye],
Russia Gosudarstvennyĭ komitet po delam stroitel'stva, Stroitel'nye normy i pravila Chast' III, Gl 15 Pravila proizvodstva i priemki rabot (Construction norms and rules Part III, Chapter 15 Rules for conducting and accepting work), Moscow, Stroĭizdat, 1977, 127p SNiP III-15-76
Winter concreting, Reinforced concretes, Concrete placing, Hydraulic structures, Permafrost, Underwater concreting.

35-1718
Wall-in-the ground method of building foundations and structures. [Ustroistvo fundamentov i konstruktsii sposobom "stena v grunte"].
Smorodinov, M.I., et al. Moscow, Strolizdat, 1976. 129p., In Russian with English table of contents enclosed. 93 refs
Fedorov, B.S.
Underground facilities, Underground storage, Earthwork, Walls, Supports, Anchors, Cements, Clays, Earth fills, Concrete structures, Tunnels, Trenching, Slope stabilization.

35-1719
Instructions for using formwork for cast-in-place reinforced concrete structures, No.3. [Rukovodstvo po primeneniiu opalubki dlia vozvedeniia monolitnykh zhelezobetonnykh konstruktsii Vyp. III].
Moscow Tsentral'nyi nauchno-issledovatel'skii i proektnoeksperimental'nyi institut organizatsii, mekhanizatsii i tekhnicheskoi pomoshchi stroitel'stvu, Moscow, Stroiizdat, 1974, 142p. In Russian with English table of contents enclosed
Concrete placing, Formwork (construction), Concrete structures, Reinforced concretes, Winter concreting.

35-1720
Wintertime Arctic sea ice extremes and the simultaneous atmospheric circulation.
Johnson, C.M., *Monthly weather review*, Nov. 1980. 108(11), p.1782-1791. 20 refs
Sea ice distribution, Atmospheric circulation, Arctic Ocean.

35-1722
Modeling of anisotropic electromagnetic reflection from sea ice.
Golden, K.M., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*. Oct 1980. CR 80-23, 15p., ADA-094 620. 21 refs.
Ackley, S.F.
Anisotropy, Sea ice, Electromagnetic properties, Brines, Dielectric properties, Mathematical models, Ice crystal structure, Reflectivity, Radar echoes.
The contribution of brine layers to observed reflective anisotropy of sea ice at 100 MHz is quantitatively assessed. The sea ice is considered to be a stratified inhomogeneous, anisotropic dielectric consisting of pure ice containing ordered arrays of conducting inclusions (brine layers). Below the transition zone the ice is assumed to have constant azimuthal c-axis orientation within the horizontal plane so that the orientation of brine layers is uniform. The brine layers are also assumed to become increasingly well-defined with depth, since adjacent brine inclusions tend to fuse together with increasing temperature. A theoretical explanation for observed reflective anisotropy is proposed in terms of anisotropic electric flux penetration into the brine layers. Penetration anisotropy and brine layer geometry are linked to anisotropy in the complex dielectric constant of sea ice. In order to illustrate the above effects we present a numerical method of approximating the reflected power of a plane wave pulse incident on a slab of sea ice. Mixture dielectric constants, calculated for two polarizations of the incident wave, are used to calculate power reflection coefficients for the two polarizations.

35-1723
Measurement of the shear stress on the underside of simulated ice covers.
Calkins, D.J., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*. Oct. 1980. CR 80-24, 11p., ADA-094 621. 15 refs
Müller, A.
Ice mechanics, Shear stress, Hydraulics, Subglacial observations, Surface roughness, Water, Velocity, Experimentation, Models.
The fluid shear stress applied to the underside of a simulated floating ice cover was measured in a laboratory flume. The measured values were compared with values of the shear stress computed from the von Karman-Prandtl velocity distribution fitted to the velocity profiles measured beneath the cover. For the lower velocity runs (about 0.079 m/s) the measured and computed values of the shear stress were in close agreement. At the high velocity flows (about 0.138 m/s) the measured values were roughly one-half those calculated from the velocity distribution. As the underside of the cover became increasingly rougher the position of maximum velocity moved closer to the bottom of the channel. It was shown that the Darcy friction coefficient is exponentially related to a normalized ice cover thickness, which suggests that it is measure of the roughness of a fragmented ice cover.

35-1724
Single and double reaction beam load cells for measuring ice forces.
Johnson, P.R., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*. Oct 1980. CR 80-25, 17p., 15 refs.
Zarling, J.P.
Ice loads, River ice, Bridges, Measuring instruments, Loads (forces).
Two new types of load cells for attachment to bridge piers and direct measurement of ice forces were developed and tested with one type being installed on a pier of the Yukon River Bridge northwest of Fairbanks, Alaska. Both types of load cells used beams supported by base plates and carried nose plates that were loaded by the ice. The loads were imposed at the beams at locations differing from the support reactions so that the loads developed moments in the beams. By instrumenting them with strain gauges, the loads could be measured. Details of the design of the load cells, the means of calculating the loads and experience obtained with load cells are discussed.

35-1725
Resins and non-portland cements for construction in the cold.
Johnson, R., *U.S. Army Cold Regions Research and Engineering Laboratory*. Sep 1980. SR 80-35. 19p., ADA-092 952. 6 refs
Cements, Cold weather construction, Construction materials, Resins, Polymers.
A laboratory investigation was conducted to assess the potential of some resins and non-portland cements for structural concrete at low temperatures. The resins investigated were urethane (non-hydrophilic), epoxy and polyester, as well as a polysulfide polymer. Two non-portland (modified) cements were also tested. The curability of the resins when mixed with fine aggregate, showed that they had potential for low temperature use in the following decreasing order: urethane, polyester, and epoxy. Of the non-portland cement materials, mixed as individual neat slurries one showed potential for low temperature use at -10 C (using 3.9 C water).

35-1726
Infiltration characteristics of soils at Apple Valley, Minn.; Clarence Cannon Dam, Mo; and Deer Creek Lake, Ohio, land treatment sites.
Abele, G., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*. Oct. 1980. SR 80-36, 41p., ADA 093 350. 5 refs
McKim, H.L., Brockett, B.E., Ingersoll, J.
Soil water migration, Permeability, Soil mechanics, Seepage, Waste treatment, Density (mass/volume), Gravity, Tests.
Large-scale 3- to 6-m diameter infiltration tests provide realistic data for determining soil infiltration rates. Tensiometers can be used to monitor the relative degree of saturation during the test. At Apply Valley, Minnesota, the saturated infiltration rate is moderately rapid, at Clarence Cannon Dam, Missouri, the rates range from moderate to slow, and at Deer Creek Lake, Ohio from moderately slow to slow.

35-1727
Calculation of the basic components of the ice balance in the Denmark Strait.
Antropova, L.V., et al. *U.S. Army Cold Regions Research and Engineering Laboratory*. Nov 1980. TL 742, 16p., ADB-054 463L. For Russian original see 24-359. 9 refs
Kogan, B.A.
Ice conditions, Drift, Sea ice, Ice navigation, Ice forecasting, Ice edge.
An investigation of the regularity of seasonal variations in ice conditions throughout the year in the Denmark Strait is of particular interest for navigation as well as for commercial fishing and a host of other problems. In order to identify the reasons for the variability of the ice conditions in this region, data can be used relating to the ice equilibrium of the strait. This article contains the results of a calculation of the monthly values of the basic ice balance components in the Denmark Strait for the period of 1960 to 1971, and evaluates their roles in the annual and seasonal variability of ice content in this region. To define the peculiarities of the ice system, the ice balance components are calculated both for the strait as a whole and the single-degree zones.

35-1728
Road bearing capacity as decided by deflection measurements and the index method.
Refsdal, G., *U.S. Army Cold Regions Research and Engineering Laboratory*. Nov. 1980. TL 754, 13p., ADA-094 663, 2 refs. Translated from unidentified source
Roads, Bearing strength, Dynamic loads, Trafficability, Seasonal variations.
In Norway, the bearing capacity of roads is determined on the basis of measuring the layer thickness (index method) or by deflection measurement. The layer thickness measurements give us the bearing capacity of the road over the entire year while deflection measurement shows the bearing capacity at the time of measurement. Deflection measurements are primarily used to determine the bearing capacity in the summertime, since this hardly varies from year to year. The purpose of this article is to discuss the uncertainties of using these methods.

35-1729
Cooling tendency in the surface water of the North Atlantic Ocean.
German Meteorological Service. *U.S. Army Cold Regions Research and Engineering Laboratory*. Nov 1980. TL 751, 3p., ADA-094 636. Translated from Umschau, 1966, No 23, p 777.
Water temperature, Surface waters, North Atlantic Ocean.
Results from the water temperature measurements from 9 "meteorological ship" positions making up the North Atlantic Ocean Weather Stations (all together about 380,000 observations) over the last 15 years have revealed that the surface temperature of the outer tropical North Atlantic has dropped continuously since the five-year period (1951-55). This phenomenon is considered in detail.

35-1730
Forms, form distributions and lower limits in present periglacial levels in high mountains of Europe and Africa from the Arctic to the equator. Proceedings of a symposium. [Formen, Formengesellschaften und Untergrenzen in den heutigen periglazialen Höhenstufen der Hochgebirge Europas und Afrikas zwischen Arktis und Aquator. Bericht über ein Symposium].
Poser, H., ed. *Akademie der Wissenschaften, Göttingen. Mathematisch-Physikalische Klasse. Abhandlungen. Folge 3*, 1977, No 31, 354p., In German, English and French. Refs passim.
Periglacial processes, Alpine glaciation, Permafrost distribution, Mountains, Polygonal topography.

35-1731
Helicopter icing review.
Peterson, A.A., et al. *U.S. Federal Aviation Administration Report*, Sep. 1980. FAA-CT-80-210. 233p., 55 refs
Dadone, L.U.
Helicopters, Aircraft icing, Forecasting, Protection.

35-1732
Microwave remote sensing of snowpack properties.
Workshop on the Microwave Remote Sensing of Snowpack Properties, Fort Collins, Colorado, May 20-22, 1980. NASA conference publication 2153. Washington, D.C., NASA, Scientific and Technical Information Office, Oct 1980, 275p., Refs passim. For individual articles see 35-1733 through 35-1746.
Rango, A., ed.
Snow water content, Snow water equivalent, Snow depth, Remote sensing, Microwaves, Snow electrical properties, Radiometers, Analysis (mathematics), Meetings.

35-1733
Evolution of snow sensors and the potential of microwave devices in operational telemetry networks.
Shafer, B.A., Workshop on the Microwave Remote Sensing of Snowpack Properties, Fort Collins, Colorado, May 20-22, 1980 Proceedings. Edited by A. Rango. NASA conference publication 2153, Washington, D.C., NASA, Scientific and Technical Information Office, Oct 1980, p.1-10, 11 refs
Snow depth, Snow water content, Remote sensing, Microwaves, Telemetering equipment, Radar echoes.

35-1734
California's transition from conventional snowpack measurements to a developing remote sensing capability for water supply forecasting.
Brown, A.J., et al, Workshop on the Microwave Remote Sensing of Snowpack Properties, Fort Collins, Colorado, May 20-22, 1980 Proceedings. Edited by A. Rango. NASA conference publication 2153, Washington, D.C., NASA, Scientific and Technical Information Office, Oct 1980, p.11-19, 5 refs
Peterson, N.
Snow depth, Snow accumulation, Snow water content, Water supply, Remote sensing, Forecasting, Snow surveys.

35-1735
Liquid distribution and the dielectric constant of wet snow.
Colbeck, S.C., MP 1349, Workshop on the Microwave Remote Sensing of Snowpack Properties, Fort Collins, Colorado, May 20-22, 1980 Proceedings. Edited by A. Rango. NASA conference publication 2153, Washington, D.C., NASA, Scientific and Technical Information Office, Oct 1980, p.21-39, 15 refs.
Wet snow, Dielectric properties, Permeability, Liquid solid interfaces, Snow water content, Snow electrical properties, Snow density, Snow cover structure, Water flow, Porosity, Analysis (mathematics).
The mixing theory of Polder and Van Santen is revised for application to three cases of wet snow. The dielectric constant is calculated for a range of liquid contents and porosities. These calculated values compare favorably with experimental data for the two cases in which data are available. The application to a snow cover with a heterogeneous distribution of liquid is discussed. The possibility of applying this theory to calculate the imaginary part of the dielectric constant must be explored further.

35-1736
Measurement of liquid water content in a melting snowpack using cold calorimeter techniques.
Jones, E B., et al. Workshop on the Microwave Remote Sensing of Snowpack Properties, Fort Collins, Colorado, May 20-22, 1980 Proceedings Edited by A. Rango. NASA conference publication 2153, Washington, D.C. NASA, Scientific and Technical Information Office, Oct. 1980, p 41-67, 24 refs
Rango, A., Howell, S
Snow water content, Wet snow, Calorimeters, Snow melting, Snow depth, Artificial freezing, Analysis (mathematics).

35-1737
Dielectric behavior of snow: a study versus liquid water content.
Ambach, W., et al. Workshop on the Microwave Remote Sensing of Snowpack Properties, Fort Collins, Colorado, May 20-22, 1980 Proceedings Edited by A. Rango. NASA conference publication 2153, Washington, D.C., NASA, Scientific and Technical Information Office, Oct. 1980, p 69-92, 30 refs
Denoth, A.
Snow electrical properties, Snow water content, Calorimeters, Dielectric properties, Remote sensing, Snow surface.

35-1738
Snow electromagnetic measurements.
Linlor, W I., et al. Workshop on the Microwave Remote Sensing of Snowpack Properties, Fort Collins, Colorado, May 20-22, 1980 Proceedings. Edited by A Rango. NASA conference publication 2153, Washington, D.C., NASA, Scientific and Technical Information Office, Oct 1980, p 93-117, 15 refs.
Smith, J.L., Clapp, F.D., Angelakos, D.J.
Snow electrical properties, Snow water content, Dielectric properties, Snow density, Attenuation, Analysis (mathematics), Runoff forecasting.

35-1739
Active microwave water equivalence measurements.
Boyne, H S., et al. Workshop on the Microwave Remote Sensing of Snowpack Properties, Fort Collins, Colorado, May 20-22, 1980 Proceedings Edited by A. Rango. NASA conference publication 2153, Washington, D.C., NASA, Scientific and Technical Information Office, Oct 1980, p 119-129, 7 refs.
Ellerbruch, D.A
Snow water equivalent, Microwaves, Remote sensing, Water supply, Watersheds, Radar echoes, Mountains.

35-1740
Radar observations of snowpacks.
Stiles, W E., et al. Workshop on the Microwave Remote Sensing of Snowpack Properties, Fort Collins, Colorado, May 20-22, 1980 Proceedings. Edited by A Rango NASA conference publication 2153, Washington, D.C., NASA, Scientific and Technical Information Office, Oct. 1980, p.131-146, 9 refs
Ulaby, F R.
Snow water content, Snow water equivalent, Snow depth, Radar echoes, Surface roughness, Wet snow, Soil temperature.

35-1741
Theoretical models for microwave snow response and applications to remote sensing.
Kong, J.A., et al. Workshop on the Microwave Remote Sensing of Snowpack Properties, Fort Collins, Colorado, May 20-22, 1980 Proceedings Edited by A. Rango. NASA conference publication 2153, Washington, D C., NASA, Scientific and Technical Information Office, Oct. 1980, p 147-167, 15 refs.
Shin, R., Chuang, S.L., Tsang, L.
Snow electrical properties, Snow thermal properties, Remote sensing, Microwaves, Brightness, Snow optics, Mathematical models.

35-1742
Remote sensing of snow properties by passive microwave radiometry: GSFC truck experiment.
Chang, A.T.C., et al. Workshop on the Microwave Remote Sensing of Snowpack Properties, Fort Collins, Colorado, May 20-22, 1980 Proceedings Edited by A. Rango. NASA conference publication 2153, Washington, D.C., NASA, Scientific and Technical Information Office, Oct 1980, p.169-185, 10 refs
Rango, A., Shiue, J.C
Snow surveys, Remote sensing, Microwaves, Radiometry, Snow depth, Snow density, Snow optics, Brightness, Snow thermal properties, Grain size, Analysis (mathematics).

35-1743
Microwave radiometric observations of snowpacks.
Ulaby, F T., et al. Workshop on the Microwave Remote Sensing of Snowpack Properties, Fort Collins, Colorado, May 20-22, 1980 Proceedings Edited by A. Rango NASA conference publication 2153, Washington, D C., NASA, Scientific and Technical Information Office, Oct 1980, p 187-201, 16 refs
Stiles, W H
Snow water content, Snow water equivalent, Radiometry, Microwaves, Radar echoes, Snow temperature, Snow surface, Analysis (mathematics).

35-1744
Microwave signatures of the natural snow cover at Weissfluhjoch.
Mätzler, C., et al. Workshop on the Microwave Remote Sensing of Snowpack Properties, Fort Collins, Colorado May 20-22, 1980 Proceedings Edited by A Rango NASA conference publication 2153, Washington, D C., NASA, Scientific and Technical Information Office, Oct 1980, p 203-223, 8 refs
Schanda, E., Good, W
Snow water equivalent, Microwaves, Snow optics, Snow thermal properties, Brightness, Snow density, Snow depth, Radiometers, Seasonal variations.

35-1745
Theoretical and experimental studies of microwave radiation from a natural snow field.
Tiuri, M., et al. Workshop on the Microwave Remote Sensing of Snowpack Properties, Fort Collins, Colorado, May 20-22, 1980 Proceedings Edited by A. Rango NASA conference publication 2153, Washington, D C., NASA, Scientific and Technical Information Office, Oct. 1980, p.225-234 7 refs.
Schultz, H
Snow water content, Snow electrical properties, Microwaves, Radiometry, Snow density, Snow optics, Snow thermal properties, Experimentation, Dielectric properties.

35-1746
Monitoring snowpack properties by passive microwave sensors on board of aircraft and satellites.
Chang, A T.C., et al. Workshop on the Microwave Remote Sensing of Snowpack Properties, Fort Collins, Colorado, May 20-22, 1980. Proceedings Edited by A. Rango NASA conference publication 2153, Washington, D C., NASA, Scientific and Technical Information Office, Oct 1980, p 235-248, 17 refs
Foster, J L., Hall, D K., Rango, A
Snow water equivalent, Snow water content, Snow depth, Microwaves, Calorimeters, Soil water.

35-1747
Limnology of tundra ponds.
Hobbie, J E., ed, US/IBP synthesis series, No 13, Stroudsburg, Pa., Dowden, Hutchinson and Ross, Inc., 1980, 514p., Refs p 457-491 For individual chapters see 35-1748 through 35-1757.
Ponds, Tundra, Limnology, Ecosystems, Photosynthesis, Oil spills.

35-1748
Major findings.
Hobbie, J.E., Limnology of tundra ponds. Edited by J E Hobbie US/IBP synthesis series, No 13, Stroudsburg, Pa., Dowden, Hutchinson and Ross, Inc., 1980, p 1-18
Ponds, Tundra, Limnology, Ecosystems, Ice melting, Environments, Nutrient cycle, Models.

35-1749
Introduction and site description.
Hobbie, J E., Limnology of tundra ponds. Edited by J E Hobbie US/IBP synthesis series, No 13, Stroudsburg, Pa., Dowden, Hutchinson and Ross, Inc., 1980, p 19-50
Ponds, Tundra, Ecosystems, Limnology, Geomorphology, Nutrient cycle, Meteorological factors, Research projects.

35-1750
Physics.
Miller, M G., et al. Limnology of tundra ponds. Edited by J E Hobbie US/IBP synthesis series, No 13, Stroudsburg, Pa., Dowden, Hutchinson and Ross, Inc., 1980, p 51-75
Prentki, R T., Barsdate, R.J.
Tundra, Ponds, Hydrology, Limnology, Bottom sediment, Photosynthesis, Light transmission, Water flow, Patterned ground, Watersheds, Meteorological factors.

35-1751
Chemistry.
Prentki, R T., et al. Limnology of tundra ponds Edited by J E Hobbie US IBP synthesis series, No 13 Stroudsburg, Pa., Dowden, Hutchinson and Ross, Inc., 1980, p.76-178
Tundra, Ponds, Bottom sediment, Limnology, Nutrient cycle, Water chemistry.

35-1752
Primary producers.
Alexander, V., et al. Limnology of tundra ponds Edited by J E Hobbie US/IBP synthesis series, No 13, Stroudsburg, Pa., Dowden, Hutchinson and Ross, Inc., 1980, p.179-250.
Stanley, D.W., Daley, R.J., McRoy, C P
Ponds, Tundra, Biomass, Algae, Plankton, Bottom sediment, Plant physiology, Photosynthesis, Temperature effects, Light effects.

35-1753
Zooplankton.
Stross, R.G., et al. Limnology of tundra ponds Edited by J.E Hobbie. US/IBP synthesis series, No 13, Stroudsburg, Pa., Dowden, Hutchinson and Ross, Inc 1980, p 251-296
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Ponds, Tundra, Plankton.

35-1754
Macrobenthos.
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Miller, M C., Mozley, S
Ecology, Tundra, Ponds, Limnology.

35-1755
Decomposers, bacteria, and microbenthos.
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Ponds, Tundra, Bacteria, Fungi, Decomposition, Bottom sediment.

35-1756
Oil spill effects.
Barsdate, R.J., et al. Limnology of tundra ponds Edited by J E. Hobbie US/IBP synthesis series, No 13 Stroudsburg, Pa., Dowden, Hutchinson and Ross, Inc 1980, p 388-406.
Miller, M.G., Alexander, V., Vestal, J R., Hobbie, J E
Ponds, Tundra, Oil spills, Water pollution, Environmental impact.

35-1757
Modeling.
Tiwari, J L., et al. Limnology of tundra ponds Edited by J.E. Hobbie US/IBP synthesis series, No.13, Stroudsburg, Pa., Dowden, Hutchinson and Ross, Inc., 1980, p.407-456
Ponds, Tundra, Primary productivity, Nutrient cycle, Algae, Bottom sediment, Models

35-1758
On the drift and deformation of sea ice fields in the Bothnian Bay.
Leppäranta, M. *Finland Winter Navigation Research Board Research report*, 1980, No 29, 79p., Refs. p.76-79
Sea ice distribution, Drift, Ice deformation, Wind factors, Ice conditions, Analysis (mathematics).

35-1759
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Ice reporting, Ice conditions, Sea ice distribution, Icebergs, Aerial surveys, Maps.

35-1760
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Dunbar, M.J., et al. *McGill University, Montreal Marine Sciences Centre Manuscript*, 1980, No 33, 119p., Refs p 87-118
Moore, D M.
Marine biology, Biogeography, Sea ice distribution, Water temperature, Environments, Climatic changes, Arctic Ocean.

35-1761
Cryogenic texture and some characteristics of ice formation in the active layer.
Parmuzina, O IU., *Polar geography and geology*, July-Sep. 1980, 4(3), p 131-152. For Russian original see 33-3265. 25 refs
Soil freezing, Ground thawing, Active layer, Soil water, Temperature variations, Thawing rate, Ground ice.

35-1762
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Environments, Glaciology, Human factors.
The meaning of glaciosphere in the environmental atmosphere ocean land glaciation system and man's impact on the system are analyzed The need to include glacier dynamics in environmental monitoring is discussed along with an implementing plan Several global glaciology problems are advanced which emphasize the interdisciplinary nature of these problems Results of earlier work in Antarctica are cited in support of the theses presented in this paper (Auth mod)

35-1763
Methods of studying end-moraines of mountain glaciers. [Metodika izucheniia konechnykh moren gornykh lednikov].
Serebriannyĭ, L R., et al, *Geomorfologiia*, Oct.-Dec 1980, No.4, p 44-53, In Russian with English summary 16 refs
Orlov, A.V
Mountain glaciers, Moraines, Glacial erosion, Minerals, Grain size, Ground ice, Composition, Structure.

35-1764
Mathematical model of slope development with viscoplastic movement of detrital material. [Matematicheskaia model' razvitiia sklona pri viazkop „sticheskom smeshchenii oblomochnogo materiala].
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Rolkhvarger, Z.B.
Slope processes, Soil erosion, Seasonal freeze thaw, Frost weathering, Solifluction, Viscous flow, Mathematical models.

35-1765
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Nedesheva, G.N., Polıakova, E.I.
Offshore landforms, Geologic structures, Coastal topographic features, USSR—Chukotskiy Peninsula, Arctic Ocean.

35-1766
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Zhemerichko, M I., *Geomorfologiia*, Oct.-Dec. 1980, No.4, p.91-94, In Russian with English summary 4 refs.
Slope processes, Frost weathering, Mass movements (geology), Creep, Temperature variations, Rock debris.

35-1767
Development of plants and the forest fire season in Transbaikal. [Razvitie rasteniĭ i pozharoopasnyĭ sezon v Zabaikal'e].
Lovanov, A.I., et al, *Lesnoe khoziaĭstvo*, 1980, No.6, p.49-50, In Russian 4 refs.
Baranov, N M.
Taĭga, Forest fires, Snow cover effect, USSR—Transbaikal.

35-1768
Environmental engineering and ecological baseline investigations along the Yukon River-Prudhoe Bay Haul Road.
Brown, J., ed, *U.S. Army Cold Regions Research and Engineering Laboratory*, Sep. 1980, CR 80-19, 187p, ADA-094 497, Refs p.151-155. For individual chapters see 35-1769 through 35-1772
Berg, R.L., ed.
Roads, Construction, Permafrost, Seasonal freeze thaw, Revegetation, Pipelines, Soil erosion, Environmental impact, Engineering, Ecology.
During the period 1975-1978 the Federal Highway Administration sponsored a series of environmental engineering investigations along the Yukon River to Prudhoe Bay Haul Road In 1976 the Department of Energy joined these investigations with a series of ecological projects which continue to the present Both agencies' research efforts were conducted on a cooperative basis with CRREL's in-house research program The objectives of the research focused on 1) an evaluation of the performance of the road, 2) an assessment of changes in the environment associated with the road, 3) documentation of flora and vegetation along the 577-km-long transect, 4) methodologies for revegetation and restoration, and 5) an assessment of biological parameters as indicators of environmental integrity In support of these objectives, specific studies were undertaken that investigated the climate along the road, thaw and subsidence beneath and adjacent to the road, drainage and side slope performance, distribution and properties of road dust, vegetation distribution, vegetation disturbance and recovery occurrence of weeds and weedy species, erosion and its control, revegetation and restoration, and construction of the fuel gas line This report presents background information on the region, detailed results of the road thaw subsidence and dust investigations, and summaries of revegetation, fuel gas line, vegetation distribution, soil, and weed studies

35-1769
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Roads, Construction, Environments, Pipelines, Permafrost, Climate, Vegetation, Geology, Ground ice, United States—Alaska.

35-1770
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Roadbeds, Construction, Permafrost beneath roads, Engineering, Seasonal freeze thaw, Thaw depth, Road maintenance, Drainage, Pipelines, Active layer.

35-1771
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Dust, Seasonal variations, Roads, Tundra, Vegetation, Environmental impact, Wind factors.

35-1772
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Revegetation, Roads, Construction, Soil erosion, Pipelines.

35-1773
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Crissman, R.D., Wate, A
Lake ice, Drift, Ice mechanics, Ice floes, Stresses, Remote sensing, Water waves, Thermodynamics, Wind velocity, Water flow, Mathematical models, Computer applications.

35-1774
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Alaska University, Fairbanks, 1980, 129p
Research projects, Environments, United States—Alaska.

35-1775
Developments in Alaska in 1979.
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Exploration, Natural resources, Economic development, Offshore drilling, Petroleum industry, United States—Alaska.

35-1776
Rapid ice-sheet growth and initiation of the last glaciation.
Johnson, R G., et al, *Quaternary research*, July 1979, 12(1), p 119-134, Refs p.132-134
Andrews, J.T.
Ice sheets, Ice growth, Glaciation, Paleoclimatology, Climatic changes, Drill core analysis, Heat transfer, Atmospheric circulation, Ocean currents.

35-1777
Heat budgets of the Southeast Beaufort Sea for the years 1974 and 1975.
Timmers, E L., Monterey, California, Naval Postgraduate School, Sep. 1980, 204p., M.S thesis 23 refs
Oceanographic surveys, Sea ice distribution, Heat capacity, Heat flux, Wind factors, Solar radiation, Latent heat, Beaufort Sea.

35-1778
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Ice crystal growth, Silver iodide, Aerosols, Structural analysis, Ice formation, Nucleating agents, X ray diffraction, Particle size distribution.

35-1779
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Rozental', O.M., Sobolev, A S.
Cement admixtures, Construction materials, Cold weather construction, Ice formation, Water content, Concrete freezing, Concrete setting.

35-1780
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Ghosh, R.
Steels, Pipelines, Low temperature tests, Tensile properties, Strength, Mechanical properties, Microstructure.

35-1781
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Miller, R D., Hillel, D Applications of soil physics, New York, Academic Press, 1980, p 254-299
Frozen ground physics, Soil freezing, Frost heave, Ice lenses, Tensile properties, Stresses, Hydraulics, Soil water, Seasonal freeze thaw.

35-1782
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Yoshikiyo, H
Thermal insulation, Low temperature tests.

35-1783
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Lind, D.A., *Physics teacher*, Feb 1980, 18(2), p 103-114, 9 refs
Snow physics, Snow crystal structure, Avalanche formation, Avalanche wind, Avalanche mechanics, Heat transfer, Temperature effects, Skis.

35-1784
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Miller, P.C., et al, Topics in plant population biology Edited by O. Solbrig, et al, Columbia Press, 1979, p 428-458
Stoner, W A.
Forest canopy, Plants (botany), Environments, Heat transfer, Water balance, Microclimatology.

35-1785
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Tundra, Lakes, Ecology Animals, Models, Arthropoda.

35-1786
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Batzli, G O., Collier, B D
Ecology, Nutrient cycle, Animals, Models.

35-1787
Dynamics of forest landscapes, affected by industrial activities, in southern taiga of the Central Urals. [Dinamika antropogennykh lesnykh landshaftov v podzone iuzhnoĭ taĭgi Srednego Urala].
Gal'perin, M I., *Perm' Universitet Uchenye zapiski*, 1975, Vol 329, p 11-14, In Russian
Taiga, Cryogenic soils, Soil erosion, Human factors, Environmental protection, USSR—Ural Mountains.

35-1788
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Landscape types, Tundra, Forest tundra, Taiga, Steppes, Alpine landscapes, Slope orientation, Slope processes, Permafrost distribution, Permafrost depth, Cryogenic soils.

35-1789
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River basins, River ice, Ice conditions, Ice forecasting, Meteorological charts, Meteorological data, USSR—Kama River.

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Alpine landscapes, Alpine tundra, Slope processes, Altiplanation, Nivation, Rock streams, Solifluction.

35-1855
Specifics of recent topographic development of the Far Eastern zone of the Baykal Amur railroad area under natural and artificial conditions. (Spetsifika sovremennogo razvitiia rel'efa v estestvennykh i iskusstvennykh usloviiakh dal'nevostochnoi zony trassy Baikalo-Amurskoi magistrali).
Nikol'skaia, V.V., Klimaticheskaia geomorfologiia Dal'nego Vostoka (Climatic geomorphology of the Far East) edited by A P Kapitsa, Vladivostok, 1976, p 89-95, In Russian
Discontinuous permafrost, Human factors, Economic development, Slope processes, Avalanches, Solifluction, Baykal Amur railroad, Snow cover effect.

35-1856
Formations of cryogenic and nival origin in the summit belt of the Sikhote-Alin Mountains. (Merzlotnye i nivatsionnye obrazovaniia v vershinnom poiase Sikhote-Alinia).
Korotkii, A M., Klimaticheskaia geomorfologiia Dal'nego Vostoka (Climatic geomorphology of the Far East) edited by A.P Kapitsa, Vladivostok, 1976, p 100-123, In Russian 49 refs
Alpine landscapes, Altiplanation, Geocryology, Nivation, Patterned ground, USSR—Sikhote Alin.

35-1857
Similarities and differences in general and particular morpho-lithogenic processes under monsoon and continental climates. (Skhodstvo i razlichie v obshchem i chastnom morfolitogeneze v usloviiakh mussonnogo i *kontinental'nogo klimata Dal'nego Vostoka*).
Korotkii, A M., et al, Klimaticheskaia geomorfologiia Dal'nego Vostoka (Climatic geomorphology of the Far East) edited by A.P Kapitsa, Vladivostok, 1976, p 124-138, In Russian. 11 refs
Skryl'nik, G P
Geomorphology, Lithology, Alpine landscapes, Rock streams, Frost shattering, Nivation, Solifluction, Naleds, Climatic factors.

35-1858
Formation of the age structure of stands in lichen pine forests of the European North. (Form. ovanie vozrast noi struktury drevostoev v lishainikovykh borakh Evropeiskogo Severa).
Listov, A.A., *Lesnoe kho ... vo*, 1980, No 8 p 25-29, In Russian 11 refs.
Taiga, Forest fires, Soil erosion, Cryogenic soils, Reforestation, Lichens.

35-1859
Influence of birch groves on snow distribution and productivity of agricultural crops. (Vliianie berezovykh kolkov na snegootlozhenie i urozhainost' sel'skokhoziaistvennykh kul'tur).
Ivanov, A.F., *Lesnoe khoziaistvo*, 1980, No 8, p 36-39, In Russian
Snow cover distribution, Snow water equivalent, Snow retention, Protective vegetation, Forest strips, Snow accumulation.

35-1860
Stability of bench marks in perennially frozen ground. (Issledovanie ustoichivosti reperov v mnogoletnei merzlote).
Bogdanov, B.G., *Geodezia i kartografiia*, Sep 1980 No 9, p 22-23, In Russian
Bench marks, Stability, Permafrost.

35-1861
Drainage of paluded forests and alimentation of rivers. (Osushenie lesnykh bolot i vodnoe pitanie rek).
Babikov, B V., *Lesnoe khoziaistvo*, 1980, No.10, p 14-26, In Russian 8 refs.
Forest land, Paludification, Swamps, Drainage, Seasonal freeze thaw, Frozen ground, Runoff, Rivers, Alimentation.

35-1862
Vacuum suction drainage technique for drying paluded and water-logged forest soils. (Osushenie zabolochennykh i pereuvlazhnennykh lesnykh ploshchadei aspiratsionnym vakuumnym drenazhem).
Panarin, M.N., et al, *Lesnoe khoziaistvo*, 1980, No 10, p 26-27, In Russian
Panarin, IU M
Forest land, Paludification, Drainage, Drains

35-1863
Allowing for the hydrothermal regime of soils when establishing parameters of drainage nets. (Uchet gidrotermicheskogo rezhima pochv pri obosnovanii parametrov osushitel'noi seti).
Popov, IU A., et al, *Lesnoe khoziaistvo*, 1980 No 10 p.27-28, In Russian
Petruk, S G
Swamps, Peat, Cryogenic soils, Soil temperature, Drainage.

35-1864
At the poles in Antarctica. (Na poliusakh Antarktidy)
Tolstikov, E.I., Leningrad, Gidrometeoizdat, 1980 160p., In Russian
Research projects, Antarctica.
An account of nearly 25 years of Soviet antarctic research and exploration is provided by one who has participated in this work for many years. Emphasis is on Soviet activities during the International Geophysical Year, during which the author served as head of the 3rd Soviet Antarctic Expedition

35-1865
Hydrology. (Voprosy gidrologii sushi).
Grushevskii, M S., ed, Leningrad, Gidrometeoizdat, 1980, 177p., In Russian For selected papers see 35-1866 through 35-1872 Refs passim
Buzin, V A., ed
River basins, Snowmelt, Snow water equivalent, Runoff, Floods, Permafrost hydrology, Naleds, Ground water, Swamps, Permafrost distribution, Evaporation, Soil freezing, Soil water migration, Measuring instruments.

35-1866
Example of calculation of ultimate intensity of spring flood runoff (data of the Kolyma Water Balance Station). (Primer issledovaniia predel'noi intensivnosti stoka vesennego polovod'ia (po materialam Kolymskoi vodnobalansovoi stantsii)).
Goroshkova, N.I., Voprosy gidrologii sushi (Hydrology) edited by M S. Grushevskii and V A Buzin, Leningrad, Gidrometeoizdat, 1980, p 10-17, In Russian 12 refs
River basins, Snowmelt, Snow water equivalent, Floods, Runoff.

35-1867
Formation of large ground water naleds (the Mururin naled). (Protsess formirovaniia krupnykh naledei podzemnykh vod (na primere Mururinskoi naledi)).
Kolotaev, V N., Voprosy gidrologii sushi (Hydrology) edited by M S. Grushevskii and V A Buzin, Leningrad, Gidrometeoizdat, 1980, p 37-45, In Russian 7 refs
Permafrost hydrology, Naleds, Alimentation, Ground water, Ice growth, River ice, Ice cracks, Ground ice, Frost mounds.

35-1868
Naled disintegration by water streams. (O razrushenii naledei vodnymi potokami).
Markov, M L., Voprosy gidrologii sushi (Hydrology) edited by M S Grushevskii and V.A Buzin, Leningrad, Gidrometeoizdat, 1980. p 46-52. In Russian. 3 refs
Permafrost hydrology, Naleds, Ice melting, Streams, Water erosion.

35-1869
Space-time variations of naled albedo during thawing periods. (Prostranstvenno-vremennaia izmenchivost' al'bedo naledei v period taianiia).
Deikin, B N., Voprosy gidrologii sushi (Hydrology) edited by M.S Grushevskii and V.A. Buzin, Leningrad, Gidrometeoizdat, 1980. p.53-60. In Russian. 7 refs
Permafrost hydrology, Naleds, Albedo, Radiation balance, Ice melting, Ice temperature.

35-1870
Evaluating river naled characteristics in the Baykal Amur railroad zone. (Otsenka kharakteristik rechnykh naledei v zone BAM).
Popova, I L., Voprosy gidrologii sushi (Hydrology) edited by M S Grushevskii and V.A Buzin, Leningrad, Gidrometeoizdat, 1980. p 61-66. In Russian 4 refs
River basins, River ice, Naleds, Ice cover thickness, Ice growth, Ice volume, Ice loads, Hydraulic structures, Baykal Amur railroad.

35-1871
Determining evaporation from hummocky bogs. (K voprosu opredeleniia isparenia s bugristykh bolot).
Moskvin, IU P., et al, Voprosy gidrologii sushi (Hydrology) edited by M S. Grushevskii and V.A. Buzin, Leningrad, Gidrometeoizdat, 1980. p 67-75. In Russian. 5 refs
Kanavina, G I
Swamps, Peat, Hummocks, Water balance, Evaporation.

35-1872
Gamma-method of studying soil density and water migration during freezing. (Issledovanie dinamiki vlazhnosti i plotnosti pochv pri ikh promerzanii metodom gammaskopii).
Lavrov, S A., Voprosy gidrologii sushi (Hydrology) edited by M S Grushevskii and V A Buzin, Leningrad, Gidrometeoizdat, 1980. p.76-81. In Russian. 4 refs
Soil freezing, Frost penetration, Soil water migration, Water content, Measuring instruments, Gamma irradiation.

35-1873
Alaskan gas breakthrough nearing.
Hale, D., ed. *Pipeline and gas journal*, Sep. 1980. 207(11), p 17-21.
Gas pipelines, Construction, Cost analysis.

35-1874
Arctic pipeline operation, a different world.
Hale, D., ed. *Pipeline and gas journal*, Sep 1980. 207(11), p 22-30
Pipelines, Cold weather operation, Cold weather survival, Hot oil lines, Oil spills, Leakage.

35-1875
Seasonal runoff volumes conditioned on forecasted total runoff volume.
Hoshi, K., et al, *Water resources research*, Dec. 1980. 16(6), p 1079-1084. 19 refs
Burges, S J
Runoff forecasting, Seasonal variations, Snowmelt, Stream flow, Analysis (mathematics), Volume.

35-1876
Winterize equipment for best performance. *Pipeline and gas journal*, Nov 1980. 207(13), p 51-57
Construction equipment, Winter maintenance, Cold weather operation.

35-1877
Swiss Federal Institute for Snow and Avalanche Research on Weissfluhjoch, near Davos. (Das Eidgenössische Institut für Schnee- und Lawinenforschung auf Weissfluhjoch ob Davos).
De Quervain, M., Davos, Switzerland, 1980. 54p., In German
Snow surveys, Avalanches, Research projects.

35-1878
Investigation of frozen soils using Time Domain Reflectometry.
Smith, M W., et al, *Canada Department of Energy, Mines and Resources Earth Physics Branch Open file*, 1980, No 80-12, 59p., In English with French summary Refs p 57-59.
Patterson, D.
Frozen ground, Unfrozen water content, Dielectric properties, Soil freezing, Temperature effects.

35-1879
Offshore engineering information sources.
Whittick, J A., *Memorial University of Newfoundland Centre for Cold Ocean Resources Engineering. C-CORE publication*, Oct. 1980, No 80-10, 34p., 37 refs
Offshore drilling, Engineering, Natural resources, Sea ice, Computer applications.

35-1880
Detuning for controlling galloping of single conductor transmission lines.
Havard, D G., IEEE Power Engineering Society Summer meeting Text of "A" papers, Vancouver, B C., July 1979, 6p., Paper A 79 500-0, 13 refs
DLC TK5.125a 1979
Power line icing, Wind factors, Ice accretion, Vibration, Theories.

35-1881
NRC ice property measurements during the *Canmar Kigoriak* trials in the Beaufort Sea, winter 1979-80.
Frederking, R M W., et al, *National Research Council, Canada Division of Building Research Paper*, Oct 1980. No 947, 11p + 54 figs., 5 refs.
Timco, G.W
Ice crystal structure, Ice temperature, Ice salinity, Ice strength, Ice cores, Ice cover strength.

35-1882
James Bay Hydro-Electric Project; a statement of environmental concerns and recommendations for protection and enhancement measures. Canada, Environmental Protection Service, Lands Directorate, Mar 1975, 45p
Environmental protection, Electric power, Ecology, Dams, Erosion, Marine biology, Climatic changes.

35-1883
Permafrost active layer in the Sudety Mountains during the last glaciation.
Jahn, A., *Quaestiones geographicae*, 1977, No 4, p 29-42, 13 refs
Active layer, Periglacial processes, Glaciation, Paleoclimatology.

35-1884
Origin of pingos in regions of thick permafrost, western Canadian Arctic.
Pissart, A., et al, *Quaestiones geographicae*, 1977, No 4, p.149-160, 16 refs
French, H M.
Pingos, Origin, Continuous permafrost, Taliks beneath lakes, Freezing.

35-1885
Mechanical properties of snow: treatment as a Burgers body. (Propriétés mécaniques de la neige: assimilation a un corps de Burgers).
Navarre, J P., et al, *France Direction de la Météorologie, Etablissement d'etudes et de recherches météorologiques Note interne*, Apr 1977, No.389, 31p., In French 9 refs
Blain, P.L., Taillefer, A
Snow mechanics, Rheology, Snow elasticity, Viscosity, Cold chambers, Analysis (mathematics).

35-1886
Mechanical properties of snow: experimental study by triaxial compression. (Propriétés mécaniques de la neige. étude expérimentale en compression triaxiale).
Navarre, J.P., et al, *France Direction de la Meteorologie Etablissement d'etudes et de recherches meteorologiques Nouvelle série Note technique*, Mar 1979, No 19, 25p., In French
Taillefer, A., Desrues, J., Flavigny, E
Snow mechanics, Rheology, Cold chambers, Mathematical models.

35-1887
Mechanical properties of snow: incremental rheological regularities. (Propriétés mecaniques de la neige lois rhéologiques incrémentales).
Navarre, J.P., et al, *France Direction de la Meteorologie Etablissement d'etudes et de recherches meteorologiques Nouvelle serie Note technique*, Apr 1979, No.21, 28p., In French
Desrues, J., Darve, F
Snow mechanics, Rheology, Snow elasticity, Viscosity, Analysis (mathematics).

35-1888
Mechanical properties of snow: incremental rheological regularities, Pt.2. (Propriétés mecaniques de la neige lois rheologiques incrementales, 2).
Navarre, J P., et al, *France Direction de la Meteorologie Etablissement d'etudes et de recherches meteorologiques Nouvelle série Note technique*, Dec 1979, No 43, 21p., In French 3 refs
Desrues, J., Darve, F
Snow mechanics, Rheology, Snow elasticity, Analysis (mathematics).

35-1889
Mechanical properties of snow: finite element model study of a snow cover deposited on a slope. (Proprietes mecaniques de la neige etude d'une couche de neige deposee sur une pente par un modele aux elements finis).
Navarre, J.P., et al, *France Direction de la Meteorologie Etablissement d'etudes et de recherches meteorologiques Nouvelle serie Note technique*, Dec 1979, No 44, 39p., In French 4 refs
Desrues, J., Darve, F
Snow mechanics, Snow cover stability, Slope orientation, Computer applications, Models.

35-1890
Study of gradient metamorphism by simulation in a cold chamber. (Etude de la métamorphose de gradient par simulation en chambre froid).
Delsol, F., et al, *France Direction de la Meteorologie Etablissement d'etudes et de recherches meteorologiques Nouvelle serie Note technique*, Dec 1978, No 7, 42p., In French 15 refs
Marbouty, D., Pahaut, E., Pougatch, B
Snow crystal structure, Metamorphism (snow), Cold chambers, Ice crystal structure, Temperature effects, Models.

35-1891
Investigations of sea ice anisotropy, electromagnetic properties, strength, and under-ice current orientation.
Kovacs, A., et al, *U S Army Cold Regions Research and Engineering Laboratory*, Sep 1980. CR 80-20, 18p., ADA-092 089, 16 refs
Morey, R.M.
Sea ice, Anisotropy, Ice strength, Electromagnetic properties, Ice crystal structure, Brines, Ocean currents, Radio echo soundings.
Results of impulse radar studies of sea ice give support to the concept of a sea ice model in which the ice bottom is composed of an array of lossy parallel plate waveguides. The fundamental relation between the average bulk brine volume of sea ice and its electrical and strength properties is discussed as is the remote detection of under-ice current alignment. It was found that 1) the average effective bulk dielectric constant is dependent upon the average bulk brine volume of the sea ice, 2) sea ice anisotropy arising from a bottom structure of crystal platelets with a preferred c axis horizontal alignment can be detected by radio echo sounding measurements made not only on the ice surface but also from an airborne platform 3) the effective coefficient of reflection from the sea ice bottom decreases with increasing average effective bulk dielectric constant of the ice decreases with increasing bulk brine volume, and is typically one to two orders of magnitude lower than the coefficient of reflection from the ice surface, and 4) the losses in sea ice increase with increasing average bulk brine volume

35-1892
Mechanics of cutting and boring. Part 5: Dynamics and energetics of indentation tools.
Mellor, M., *U S Army Cold Regions Research and Engineering Laboratory*, Sep 1980. CR 80-21, 82p., ADA-092 365, 40 refs
Drilling, Ice cutting, Excavation, Permafrost, Rock drilling, Loads (forces), Equipment, Dynamic loads, Stresses, Design.
This report deals with the cutting of rock and other brittle materials by means of indentation tools. The principles of indentation cutters are dealt with at length the coverage including elastic contact stresses for initial loading by various types of indenters application of formal plasticity theory to penetration analysis and a variety of theories and penetration analyses that are not based on plasticity theory. Practical indentation mechanisms are described, and theoretical analyses are given for the dynamics and energetics of various types of roller cutters. The final section reviews experimental investigations and results for rock cutting discs giving a systematic summary of available data

35-1893
Neumann solution applied to soil systems.
Lunardini, V J., *U S Army Cold Regions Research and Engineering Laboratory*, Oct 1980. CR 80-22, 7p., ADA-092 244, 12 refs
Soil freezing, Ground thawing, Freeze thaw tests, Thermal conductivity, Thermal diffusion, Active layer, Phase transformations, Time factor, Analysis (mathematics).
The only complete analytic solution for conduction problems with phase change is the Neumann solution. The Neumann

solution is valid for phase change in a semi infinite, homogeneous medium with a step change in surface temperature starting from an initial temperature which can be different than or equal to the fusion temperature of the medium The Neumann solution, when applied to soils, forms the basis of a number of formulae for calculating the depths of freezing or thawing Widely used graphs were previously developed that are valid only when the ratios of the thermal conductivities and thermal diffusivities of the frozen and thawed soils are unity In this report general charts, applicable to any property ratios are developed The figures have been drawn specifically for soil systems but they are applicable to any material with appropriate property ratios.

35-1894
Phase change around a circular pipe.
Lunardini, V J., *U S Army Cold Regions Research and Engineering Laboratory*. Dec 1980. CR 80-27. 18p., ADA-094 600. 12 refs
Pipes (tubes), Heat transfer, Permafrost thermal properties, Stefan problem, Phase transformations, Frozen ground strength, Thermal diffusion, Freeze thaw cycles, Analysis (mathematics).
No general, analytical solution exists for phase change around a cylinder, thus, approximate methods have been evaluated The heat balance integral technique applied to the cylinder gave excellent results when compared to published numerical solutions Graphical solutions are given for phase change about a cylinder for ranges of the Stefan number, superheat parameter and property value ration for typical soils An approximate general solution has been derived which is reasonably accurate and can be used for any values of the above-mentioned parameters The effective thermal diffusivity method has been shown to be useful for practical problems of phase change

35-1895
Several properties of the radio emission of land surfaces.
Gurvich, A S., *U S National Aeronautics and Space Administration. Technical translation*. July 1973. NASA TT F-14978. 29p., Translation of Nekotorye osobennosti radioizlucheniia zemnykh pokrovov Academy of Science of the USSR, Institute of Space Research Report presented at the Meeting of the Soviet-American Working Group on Remote Sensing of Natural Environment from Space, Feb 12-17, 1973 8 refs
Thermal radiation, Glacier ice, Radiation measuring instruments, Firn, Mathematical models, Antarctica.
Explanations and mathematical analyses are presented of measurements of brightness temperatures made from space vehicles Measurements were made above antarctic glaciers and firn fields Differences in brightness measurements are compared

35-1896
Geohydrology of the Delta-Clearwater area, Alaska.
Wilcox, D E., *U S Geological Survey Water-resources investigations*. Dec 1980. No 80-92. 26p., 14 refs
Hydrology, Geology, Surface waters, Ground water.

35-1897
Afforestation processes and their control in the European North. (Lesoobrazovatel'nye protsessy i ikh regulirovanie na evropeĭskom Severe).
L'vov, P.N., et al, Moscow, Izd-vo "Lesnaia promyshlennost." 1980. 113p., In Russian with English table of contents enclosed 51 refs
Ipatov, L F., Plokhov, A A
Forestry, Cryogenic soils, Revegetation, Taiga, Forest canopy, Plant ecology, Plant physiology.

35-1898
Siberian cities. (Gorod v Sibiri).
Pertsik, E N., Moscow, Mysl', 1980. 286p., In Russian with abridged English table of contents enclosed Refs p.281-284.
Urban planning, Residential buildings, Industrial buildings, Hydraulic structures, Transportation, Construction, Mining, Environmental protection, Natural resources, Coal, Petroleum industry.

35-1899
Simple ice phase parametrization.
Stephens, M.A., *Colorado State University, Fort Collins, Department of Atmospheric Science Atmospheric science paper*. Dec. 1979. No 319. 122p., Refs p 112-117
Freezing, Ice crystal growth, Ice physics, Snow crystal growth, Snow pellets, Snow physics, Raindrops, Mathematical models.

35-1900
Geoecology of the Colorado Front Range: a study of alpine and subalpine environments.
Ives, J.D., ed. Boulder, Colorado, Westview Press, 1980. 484p., A collection of papers selected from various sources
Environments, Alpine tundra, Nivation, Soil erosion, Forest tundra, Forest lines, Ecology.

35-1901
Quantitative evaluation of nivation in the Colorado Front Range.
Thorn, C.E., *Geological Society of America. Bulletin*. 1976, Vol 87, p 1169-1178, 50 refs Also in Geoecology of the Colorado Front Range a study of alpine and subalpine environments Edited by J D Ives, 1980, p 164-173
Nivation, Weathering, Solifluction, Meltwater, Freeze thaw cycles, Sediment transport.

35-1902
Soil loss in the Colorado Front Range: sampling design and areal variation.
Bovis, M J., *Zeitschrift fur Geomorphologie Supplement*, 1978, Vol 29, p.10-21, In English with German and French summaries. 21 refs. Also in Geoecology of the Colorado Front Range, a study of alpine and subalpine environments Edited by J.D Ives, 1980, p 187-198
Soil erosion, Alpine tundra, Solifluction, Soil mechanics.

35-1903
Engelmann spruce *(Picea engelmannii* Engel.) at its upper limits on the Front Range, Colorado.
Wardle, P., *Ecology*, 1968, 49(3), p 483-495, 17 refs Also in Geoecology of the Colorado Front Range a study of alpine and subalpine environments Edited by J D Ives, 1980 p 339-350
Forest lines, Forest tundra, Snow cover effect, Growth.

35-1904
Remarks on the stability of timberline.
Ives, J.D., Geoecological relations between the southern temperate zone and the tropical mountains Edited by C. Troll and W. Lauer, Wiesbaden, Franz Steiner Verlag GMBH, 1978, p 313-317, 19 refs. Also in Geoecology of the Colorado Front Range, a study of alpine and subalpine environments Edited by J.D Ives, 1980, p.351-358.
Forest lines, Biogeography, Periodic variations, Ecology, Mountains.

35-1905
Genetic differentiation among growth forms of Engelmann spruce and subalpine fir at tree line.
Grant, M.C., et al, *Arctic and alpine research*, 1977, 9(3), p.259-263, 26 refs Also in Geoecology of the Colorado Front Range: a study of alpine and subalpine environments Edited by J D. Ives, 1980, p 359-363
Mitton, J.B
Forest lines, Trees (plants), Growth.

35-1906
Nocturnal arthropods in the alpine tundra of Colorado.
Schmoller, R., *Arctic and alpine research*, 1971, 3(4), p.345-352, 15 refs Also in Geoecology of the Colorado Front by J.D. Ives, 1980, p 460-467
Alpine tundra, Animals, Diurnal variations, Arthropoda.

35-1907
Observation of rime and glaze deposits in Quebec.
Félin, B., March 1976, 53p + Appends., Presented at the Canadian Electrical Association Spring Meeting, Toronto, March 22-24, 1976. Unpublished manuscript. In English with French summary 20 refs
Icing, Glaze, Ice accretion, Ice formation, Supercooled clouds, Ice detection, Power line icing, Vegetation, Meteorological factors.

35-1908
Retreat of the last ice sheets in northeastern British Columbia and adjacent Alberta.
Mathew W.H., *Canada. Geological Survey Bulletin*. 1980, No 331, 22p., 33 refs.
Ice sheets, Glaciation, Ice mechanics, Glacier oscillation, History, Aerial surveys, Paleoclimatology.

35-1909
Determination of the tangential stresses on the lower surface of ice in the presence of pure wind drift.
Kheisin, D.E., et al, 1980, 7p., Unpublished manuscript by C-CORE, St Johns, NFLD For Russian original see 31-3541 7 refs
Ivchenko, V O.
Drift, Ice mechanics, Turbulence, Stresses, Sea ice, Analysis (mathematics), Wind factors.

35-1910
Ice blocks melting into a salinity gradient.
Huppert, H.E., et al, *Journal of fluid mechanics*, 1980, 100(2), p.367-384, 15 refs.
Turner, J S
Icebergs, Melting, Heat transfer, Salinity.
In our previous qualitative paper it was shown that when a vertical ice surface melts into a stable salinity gradient, the melt water spreads out into the interior in a series of nearly horizontal layers The experiments reported here are aimed at quantifying this effect, which could be of some importance in the application to melting icebergs Experiments have also been carried out with heated and cooled vertical walls at larger Rayleigh numbers R_a than those of previous experiments The main result is that for most of our experiments there is no significant difference between these three cases when properly scaled The layer thickness over a wide range of R_a is described to within the experimental accuracy by a formula which utilizes the horizontal buoyancy difference evaluated at the mean salinity and the vertical density gradient due to salinity The direct application of our results to oceanographic situations predicts layer scales under typical summer conditions of order tens of metres in the Antarctic and of order metres in the Arctic (Auth mod)

35-1911
Respective influence of global pollution and volcanic eruptions on the past variations in the trace metals content of antarctic snows since 1880's.
Boutron, C., *Journal of geophysical research*, Dec 20, 1980, 85(C12), p 7426-7432, 45 refs
Snow composition, Chemical composition, Air pollution, Age determination, Antarctica—Wilkes Land.
Forty-eight successive dated snow samples collected in central East Antarctica covering a continuous time sequence between 1880's and 1977 have been analysed for Na Mg K, Ca Fe Al Mn Pb, Cd, Cu, Zn and Ag in ultraclean conditions For all the elements, both the concentrations and the enrichment factors observed in 1977 are very close to the ones observed 100 years ago, then confirming that the influence of global pollution is actually negligible for these elements in the remote areas of the southern hemisphere During the last 100 years, the variations of the enrichment factors of Pb and Zn are shown to parallel rather well those of the global volcanic activity which suggests that the high atmospheric enrichments observed presently for these two metals are likely linked with volcanism Between 1912 and 1916, there is a very strong signal showing a definite peak for the concentrations of most of the elements It could be linked with a major antarctic volcanic eruption (Auth)

35-1912
Sea ice and temperature variability in the eastern Bering Sea and the relation to atmospheric fluctuations.
Niebauer, H J., *Journal of geophysical research*, Dec 20, 1980, 85(C12), p 7507-7515, 27 refs
Sea ice distribution, Surface temperature, Temperature variations, Bering Sea.

35-1913
Boreal ecosystem.
Larsen, J A., New York, Academic Press, 1980. 500p Refs. passim
Ecosystems, Ecology, Tundra, Vegetation, Permafrost, Climate, Environments, Soils, Animals.

35-1914
Overconsolidated surficial deposits on the Beaufort Sea shelf.
Reimnitz, E., et al, *U S Geological Survey Open-file report*, 1980., No 80-2010, 37p., 15 refs
Kempema, E., Ross, R., Minkler, P
Bottom sediment, Marine deposits, Clays, Soil strength, Ice scoring, Freeze thaw cycles, Shoreline modification, Beaches, Beaufort Sea.

35-1915
Report of radio echo sounding of ice workshop, Durham, N.H., 1978.
Sivaprasad, K., ed. Durham, University of New Hampshire, 1978. 15p. + Append., For a short summary of the workshop see Antarctic journal of the United States 14(5):98, Oct. 1979 (35-669 or F-23920).
Meetings, Radio echo soundings, Ice sheets, Measuring instruments.
In three sessions, participants discussed radar echo sounding systems, modeling radar reflection data and applications of radar echo sounding to ice sheet dynamics Emphasis was placed on the diversity of user needs which require diverse systems and methods Many of the examples of sounding records are of antarctic ice sheets, particularly around Byrd Station A major topic during the discussions was the sounding system developed by the Technical University of Denmark and currently used in Antarctica

35-1916
Age and restoration dynamics of forests in the Ural Mountains and east of the Urals. (Vosstanovitel'naia i vozrastnaia dinamika lesov na Urale i v Zaural'e).
Kolesnikov, B P., ed, *Akademiia nauk SSSR Ural'skii nauchnyĭ tsentr Institut ekologii rastenii i zhivotnykh Trudy*, 1976, Vol 101, 168p., In Russian For individual papers see 35-1917 through 35-1921 Refs. passim
Smolonogov, E P., ed.
DLC QH301 A365
Landscape types, Alpine landscapes, Alpine tundra, Taiga, Cryogenic soils, Paludification, Peat, Soil profiles, Forest fires, Reforestation, USSR—Tannu Ola Range, USSR—Ural Mountains.

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Genetic classification of forests on the northern macroslope of the eastern Tannu-Ola (Tuva ASSR). (Geneticheskaia klassifikatsiia lesov severnogo makrosklona Vostochnogo Tannu-Ola (Tuvinskaia ASSR)).
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Smolonogov, E P
DLC QH301 A365
Alpine landscapes, Landscape types, Alpine tundra, Taiga, Cryogenic soils, USSR—Tannu Ola Range.

35-1918
Space dynamics of the Siberian cedar in taiga forests of the northern Ural Mountains and the West Siberian Plain. (Prostranstvennaia dinamika kedra sibirskogo v taezhnykh lesakh Severnogo Urala i severo-vostoka Zapadno-Sibirskoi ravniny).
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Smolonogov, E P.
DLC QH301.A365
Taiga, Vegetation, Paludification, Cryogenic soils, Plant ecology, USSR—Ural Mountains.

35-1919
Formation and development of green moss-berry bush cedar forests in the northern Ural Mountains. (Formirovanie i razvitie kedrovnika zelenomoshno-tagodnikovogo na Severnom Urale).
Kirsanov, V.A., *Akademiia nauk SSSR. Ural'skii nauchnyi tsentr. Institut ekologii rastenii i zhivotnykh. Trudy*, 1976, Vol 101, Vosstanovitel'naia i vozrastnaia dinamika lesov na Urale i v Zaural'e (Age and restoration dynamics of forests in the Ural Mountains and east of the Urals) edited by B P. Kolesnikov and E P Smolonogov, p 104-113. In Russian. 15 refs.
DLC QH301.A365
Mountain soils, Forest soils, Taiga, Forest fires, Revegetation, USSR—Ural Mountains.

35-1920
Physical properties of soils and their forest-forming role in dark coniferous mountain forest of the central Ural Mountains. (O fizicheskikh osobennostiakh pochv i ikh lesoobrazuiushchei roli v gornykh temnokhvoinykh lesakh Srednego Urala).
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Sumarokov, V.V., Gorbachev, V.M.
DLC QH301.A365
Landscape types, Taiga, Forest soils, Soil profiles, Soil moisture, Reforestation, Soil erosion, USSR—Ural Mountains.

35-1921
Age biology of common pine east of the Ural Mountains. (Vozrastnaia biologiia sosny obyknovennoi v Zaural'e).
Sannikov, S.N., *Akademiia nauk SSSR. Ural'skii nauchnyi tsentr. Institut ekologii rastenii i zhivotnykh. Trudy*, 1976, Vol 101, Vosstanovitel'naia i vozrastnaia dinamika lesov na Urale i v Zaural'e (Age and restoration dynamics of forests in the Ural Mountains and east of the Urals) edited by B P Kolesnikov and E P Smolonogov, p 124-165. In Russian. Refs. p.159-165.
DLC QH301.A365
Taiga, Paludification, Peat, Cryogenic soils, Frost penetration, Vegetation, Forestry, Plant physiology.

35-1922
Snow-ice runoff from the Pamirs and Pamiro-Alai. (Snegovo-lednikovyi stok Pamira i Pamiro-Alaia).
Kemmerikh, A.O., *Akademiia nauk SSSR. Izvestiia. Seriia geograficheskaia*, May-June 1980, No.3, p.88-94. In Russian. 8 refs
Snow cover distribution, Mountain glaciers, Snow water equivalent, Glacier ablation, Runoff forecasting, Glacial hydrology, Charts, USSR—Pamirs.

35-1923
Remote sensing studies of the water component. (Issledovaniia vodnoi komponenty distantsionnymi metodami).
Grinberg, A.M., et al. *Akademiia nauk SSSR. Izvestiia. Seriia geograficheskaia*, May-June 1980, No 3, p.152-154. In Russian
Kulikov, IU N., Kurilova, IU.V.
Aerial surveys, Spacecraft, Remote sensing, Snow cover distribution, Snow line, Snow water equivalent, Permafrost distribution, Ice cover, Meetings.

35-1924
Biological studies in the northeastern European USSR. (Biologicheskie issledovaniia na severo-vostoke evropeiskoi chasti SSSR).
Getsen, M.V., ed. Syktyvkar, 1974, 235p. In Russian. For selected papers see 35-1925 through 35-1927. Refs passim
Zaboeva, I.V., ed.
DLC QG311 B52
Taiga, Cryogenic soils, Podsol, Paludification, Peat, Soil chemistry, Nutrient cycle, Plant physiology.

35-1925
Biological cycle of chemical elements in taiga spruce forests. (Nekotorye osobennosti biologicheskogo krugovorota khimicheskikh elementov v el'nikakh taezhnoi zony).
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Rusanova, G.V., Sloboda, A.V.
DLC QH311 B52
Taiga, Cryogenic soils, Podsol, Soil chemistry, Nutrient cycle.

35-1926
Group composition of phosphates in the old cultivated humus-peaty soil of the central taiga of Komi ASSR. (Gruppovoi sostav fosfatov v staroosvoennoi peregnoino-torfianoi pochve srednetaezhnoi podzony Komi ASSR).
Rychkova, V.A., Biologicheskie issledovaniia na severo-vostoke evropeiskoi chasti SSSR (Biological studies in the northeastern European USSR) edited by M.V. Getsen and I.V. Zaboeva, Syktyvkar, 1974, p 15-20. In Russian with English summary. 4 refs.
DLC QH311.B52
Taiga, Cryogenic soils, Drainage, Peat, Soil chemistry.

35-1927
Suction force and respiration rate of pine roots under northern conditions. (Sosushchaia sila i intensivnost' dykhaniia kornei sosny v usloviiakh Severa).
Bobkova, K.S., Biologicheskie issledovaniia na severo-vostoke evropeiskoi chasti SSSR (Biological studies in the northeastern European USSR) edited by M.V. Getsen and I.V. Zaboeva, Syktyvkar, 1974, p 116-122. In Russian with English summary. 23 refs
DLC QH311 B52
Forest land, Cryogenic soils, Plant ecology, Plant physiology, Soil moisture, Paludification, Peat.

35-1928
Geophysical methods of studying permafrost in the USSR. (Geofizicheskie metody izucheniia merzlykh tolshch v SSSR).
Akimov, A.T., et al. Regional'naia razvedochnaia i promyslovaia geofizika. Obzornaia informatsiia (Regional, exploration and industrial geophysics. A review). Moscow, 1979, 51p. In Russian with English table of contents enclosed. 155 refs.
Mel'nikov, V.P., Frolov, A.D
Geophysical surveys, Permafrost distribution, Permafrost structure, Permafrost hydrology, Electromagnetic prospecting, Permafrost physics, Seismic prospecting, Acoustics, Radar echoes, Radiometry, Infrared reconnaissance, Aerial surveys, Permafrost thickness, Sporadic permafrost, Permafrost transformation, Bibliographies.

35-1929
Arctic ecosystem: the coastal tundra at Barrow, Alaska.
Brown, J., ed. MP 1355, US/IBP synthesis series, No 12. Stroudsburg, Pa., Dowden, Hutchinson and Ross, Inc., 1980. 571p. Refs p 483-544. For individual chapters see 35-1930 through 35-1941
Miller, P.C., ed. Tieszen, L.L., ed. Bunnell, F.L., ed
Tundra, Ecosystems, Biomass, Nutrient cycle, Soil microbiology, Organic soils, Animals, Climatic factors, Vegetation, United States—Alaska—Barrow.

35-1930
Coastal tundra at Barrow.
Brown, J., et al. MP 1356, Arctic ecosystem the coastal tundra at Barrow, Alaska. Edited by J Brown, P.C. Miller, L.L Tieszen and F L Bunnell, Stroudsburg, Pa., Dowden, Hutchinson and Ross, Inc., 1980, p 1-29
Everett, K R., Webber, P J., MacLean, S F., Jr., Murray, D.F.
Tundra, Ecosystems, Organic soils, Vegetation, Climate, Polygonal topography, Lakes, Environments.

35-1931
Climate, snow cover, microclimate, and hydrology.
Dingman, S L., et al, Arctic ecosystem, the coastal tundra at Barrow, Alaska. Edited by J Brown, P C Miller, L L Tieszen and F L Bunnell, Stroudsburg, Pa., Dowden, Hutchinson and Ross, Inc., 1980, p 30-65
Tundra, Ecosystems, Snow cover, Climate, Hydrology, Microclimatology, Snow depth, Snow temperature, Heat balance, Runoff, Snowmelt, Environments.

35-1932
Biophysical processes and primary production.
Miller, P C., et al. Arctic ecosystem the coastal tundra at Barrow, Alaska Edited by J. Brown, P C. Miller, L L Tieszen and F L Bunnell, Stroudsburg, Pa Dowden, Hutchinson and Ross, Inc, 1980, p 66-101
Webber, P J., Oechel, W C., Tieszen, L L
Tundra, Biomass, Ecosystems, Plant ecology, Plant physiology, Soil temperature, Climatic factors, Soil water, Seasonal variations.

35-1933
Photosynthesis.
Tieszen, L L., et al, Arctic ecosystem the coastal tundra at Barrow, Alaska Edited by J Brown, P C Miller, L L Tieszen and F L Bunnell, Stroudsburg, Pa., Dowden, Hutchinson and Ross, Inc., 1980, p.102-139
Miller, P C., Oechel, W C
Tundra, Photosynthesis, Biomass, Nutrient cycle, Plant physiology, Temperature effects, Water, Plant tissues, Plant ecology.

35-1934
Control of tundra plant allocation patterns and growth.
Chapin, F S., III, et al, Arctic ecosystem the coastal tundra at Barrow, Alaska. Edited by J Brown, P C Miller, L L Tieszen and F L Bunnell, Stroudsburg, Pa., Dowden, Hutchinson and Ross., Inc., 1980, p 140-185.
Tieszen, L L., Lewis, M C., Miller, P C., McCown, B H
Tundra, Plants (botany), Growth, Roots, Nutrient cycle, Ecosystems.

35-1935
Vegetation: pattern and succession.
Webber, P J., et al, Arctic ecosystem the coastal tundra at Barrow, Alaska Edited by J Brown, P C Miller, L L Tieszen and F L Bunnell, Stroudsburg, Pa., Dowden, Hutchinson and Ross, Inc., 1980, p 187-218.
Miller, P C., Chapin, F S., III, McCown, B H
Tundra, Vegetation, Growth, Plant ecology, Environmental impact, Human factors, Plants (botany), Oil spills.

35-1936
Soils and their nutrients.
Gersper, P L., et al, Arctic ecosystem the coastal tundra at Barrow, Alaska. Edited by J Brown, P C Miller, L L Tieszen and F L Bunnell, Stroudsburg, Pa., Dowden Hutchinson and Ross., Inc., 1980 p 219-254
Alexander, V., Barkley, S A., Barsdate, R.J., Flint, P S
Tundra, Organic soils, Biomass, Soil water, Soil texture, Permafrost, Density (mass/volume), Porosity, Thaw depth, Aeration.

35-1937
Microflora: composition, biomass, and environmental relations.
Bunnell, F L., et al, Arctic ecosystem, the coastal tundra at Barrow, Alaska Edited by J Brown, P C Miller, L L Tieszen and F L Bunnell, Stroudsburg, Pa., Dowden, Hutchinson and Ross, Inc., 1980, p 255-290
Miller, O K., Flanagan, P W., Benoit, R E
Tundra, Soil microbiology, Biomass, Ecosystems, Bacteria, Environments, Fungi, Algae.

35-1938
Microflora activities and decomposition.
Flanagan, P W , et al. Arctic ecosystem the coastal tundra at Barrow, Alaska Edited by J Brown, P C Miller, L L Tieszen and F.L Bunnell. Stroudsburg, Pa , Dowden, Hutchinson and Ross , Inc , 1980, p 291-334
Bunnell, F.L.
Soil microbiology, Composition, Organic soils, Tundra, Growth, Fungi, Soil water, Soil temperature.

35-1939
Herbivore-based trophic system.
Batzli, G O., et al. Arctic ecosystem the coastal tundra at Barrow, Alaska Edited by J Brown, P C Miller, L L Tieszen and F L Bunnell. Stroudsburg, Pa , Dowden, Hutchinson and Ross., Inc , 1980, p 335-410
White, R.G., MacLean, S F , Jr , Pitelka, F A., Collier, B.D
Tundra, Animals, Grazing, Ecosystems.

35-1940
Detritus-based trophic system.
MacLean, S F , Jr , Arctic ecosystem the coastal tundra at Barrow, Alaska. Edited by J Brown, P C Miller, L.L Tieszen and F.L Bunnell. Stroudsburg, Pa , Dowden, Hutchinson and Ross , Inc , 1980, p 411-457.
Tundra, Animals, Biomass, Organic soils, Nutrient cycle, Nutrition.

35-1941
Carbon and nutrient budgets and their control in coastal tundra.
Chapin, F S , III, et al. Arctic ecosystem the coastal tundra at Barrow, Alaska Edited by J Brown, P C. Miller, L L Tieszen and F.L Bunnell. Stroudsburg, Pa , Dowden, Hutchinson and Ross , Inc , 1980, p.458-482.
Miller, P.C., Billings, W D , Coyne, P.I
Tundra, Meadow soils, Organic soils, Soil chemistry, Nutrient cycle, Ecosystems, Biomass, Solar radiation, Photosynthesis, Temperature effects, Animals.

35-1942
Geomorphological processes and combined processes at the present time under different climatic conditions. (Geomorphologische Prozesse und Prozesskombinationen in der Gegenwart unter verschiedenen Klimabedingungen).
Poser, H., ed. *Akademie der Wissenschaften, Göttingen Abhandlungen. Mathematisch-physikalische Klasse Third series*, 1974, No 29, 439p , In German, English and French Refs passim For selected papers see 35-1943 through 35-1951
Geomorphology, Periglacial processes, Alpine landscapes, Nivation, Soil erosion, Slope processes, Climatic factors.

35-1943
Experimental determination of the processes producing small polygonal sorted alpine soils. (Determination expérimentale des processus responsables des petits sols polygonaux triés de haute montagne).
Pissart, A., *Akademie der Wissenschaften, Göttingen Abhandlungen. Mathematisch-physikalische Klasse Third series*, 1974, No 29, p 241-248, In French with English and German summaries 6 refs
Periglacial processes, Polygonal topography, Soil mechanics, Frost action, Geomorphology, Alpine landscapes, Soil erosion, Mountains.

35-1944
Genesis and development of patterned ground forms. (Zur Genese und Entwicklung von Strukturbodenformen).
Stingl, H , *Akademie de Wissenschaften Göttingen Abhandlungen. Mathematisch-physikalische Klasse Third series*, 1974, No.29, p.249-262, In German with English and French summaries. 38 refs
Patterned ground, Origin, Periglacial processes, Slope processes, Cracking (fracturing), Turbulence.

35-1945
Some observations concerning nivation and snow melt in Swedish Lapland.
Rudberg, S., *Akademie der Wissenschaften, Göttingen Abhandlungen Mathematisch-physikalische Klasse. Third series*, 1974, No.29, p 263-273, In English with German summary 9 refs
Nivation, Snowmelt, Frost weathering, Solifluction, Soil erosion, Mountains, Slope processes, Basal sliding.

35-1946
Formation processes on snow patches in the Icelandic highlands. (Formungsvorgänge an Schneeflecken im isländischen Hochland).
Schunke, E , *Akademie der Wissenschaften, Göttingen Abhandlungen Mathematisch-physikalische Klasse Third series*, 1974, No 29, p 274-286, In German with English summary 17 refs
Altiplanation, Snow cover effects, Snow cover distribution, Topographic features, Nivation, Periglacial processes, Frozen ground mechanics, Alpine landscapes, Soil erosion.

35-1947
Smoothing of slopes and cryoplanation shown on examples in the Alps and the Canadian Rockies (Hangglättung und Kryoplanation an Beispielen aus den Alpen und kanadischen Rocky Mountains).
Karrasch, H , *Akademie der Wissenschaften, Göttingen Abhandlungen Mathematisch-physikalische Klasse Third series*, 1974, No 29, p 287-300, In German with English summary 20 refs
Altiplanation, Slope processes, Periglacial processes, Frost weathering, Solifluction, Snow accumulation, Meltwater, Mountains.

35-1948
Importance of avalanche activity in present geomorphological processes in the Salzburg Alps. (Die Bedeutung der Lawinentätigkeit für gegenwärtige geomorphologische Prozesse im Hochgebirge von Salzburg).
Pippan, T , *Akademie der Wissenschaften, Göttingen Abhandlungen Mathematisch-physikalische Klasse Third series*, 1974, No 29, p 301-312, In German with English summary. 13 refs.
Avalanche deposits, Geomorphology, Periglacial processes, Soil mechanics, Slope processes, Frost weathering, Avalanche formation, Topographic effects, Climatic factors.

35-1949
Interrelationships between climatic and material characteristics in the occurrence of alpine mudflows in the Nigel Pass area, Canadian Rocky Mountains.
Owens, I F , *Akademie der Wissenschaften, Göttingen Abhandlungen Mathematisch-physikalische Klasse Third series*, 1974, No 29, p.313-318, In English with German summary 9 refs
Mudflows, Snowmelt, Rain, Alpine landscapes, Topographic effects, Moisture, Climatic factors, Precipitation (meteorology), Mountains.

35-1950
Rates of operation of geomorphological processes in the Canadian Cordillera.
Slaymaker, O , *Akademie der Wissenschaften, Göttingen Abhandlungen. Mathematisch-physikalische Klasse Third series*, 1974, No 29, p 319-332, In English with German summary Refs p 329-332
Geomorphology, Slope processes, Periglacial processes, Weathering, Avalanche deposits.

35-1951
Arid and periglacial processes in the subtropical semidesert of High Tenerife. (Aride und periglaziale Prozesse in der subtropischen Gebirgs-Halbwüste von Hoch-Teneriffa).
Hollermann, P , *Akademie der Wissenschaften, Göttingen Abhandlungen Mathematisch-physikalische Klasse Third series*, 1974, No 29, p 333-353, In German with English summary Refs. p 351-353
Periglacial processes, Slope processes, Alpine landscapes, Frost weathering, Soil mechanics, Frost action, Mountains, Forest lines, Desert..

35-1952
Permafrost—and its effects on human activities in Arctic and Subarctic regions.
Péwé, T L , *GeoJournal*, 1979, 3(4), p 333-344, 5 refs
Permafrost preservation, Construction, Maintenance, Engineering, Human factors, Environmental protection, Subsea permafrost, Pipelines.

35-1953
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Calabrese, S J , et al, *Lubrication engineering*, 1980, 36(5), p 283-289, 6 refs
Buxton, R , Marsh, G
Icebreakers, Protective coatings, Metal ice friction, Abrasion, Strength, Polyme, Surface roughness, Humidity, Velocity, Experimentation.

35-1954
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Snow removal, Equipment, Aircraft landing areas, Cost analysis, Runways.

35-1955
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Snow loads, Roofs, Standards, Design.

35-1956
How American technology won at the Olympics. *Mechanical engineering*, Apr 1980, 102(4), p 61
Snow manufacturing, Air water interactions, Artificial snow.

35-1957
Investigation and analysis of frozen coal handling problems.
Energy Interface Associates, Inc , U S Department of Energy, Division of Fossil Fuel Extraction Nov 1979, c125p., Contract No ET-78-C-01-3184, 18 refs
Frozen cargo, Coal, Cold weather performance, Human factors, Environmental impact, Climatic changes, Materials handling.

35-1958
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Hammond, C W , *Arctic Petroleum Operators Association, Calgary, Alta Report*, Oct 13, 1972, APOA 46-2, 9p , 2 refs
Ice crossings, Ice conditions, Ice surface, Surface roughness, Trafficability, Vehicles, Side looking radar, Aerial surveys, Mapping, Stereoscopy.

35-1959
Canadian Arctic—the promise.
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Offshore drilling, Oil recovery, Natural resources, Hydrocarbons.

35-1960
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Gaude, E , et al, *Ocean industry*, Jan 1981, 16(1), p 41-44
Baudais, D J , Watts, J S
Ice islands, Offshore drilling, Ice drills, Equipment, Design criteria.

35-1961
Innovation in Arctic pipelining. *Ocean industry*, Jan 1981, 16(1), p 45-46
Gas pipelines, Pipe laying, Natural gas, Offshore structures.

35-1962
Dome makes rich discoveries despite severe environment. *Ocean industry*, Jan 1981, 16(1) p 46-48
Offshore drilling, Oil recovery, Artificial islands, Cost analysis.

35-1963
Hull resistance test in floe of synthetic ice *Mitsubishi Heavy Industries Technical review* July 1980 17(4), p 1-6, In Japanese with English summary 6 refs
Ships, Ice navigation, Metal ice friction, Impact strength, Ice floes, Ice conditions, Velocity, Artifical ice, Tests, Resistance, Towing.

35-1964
Seasonal thermal storage in aquifer for utilization.
Yokoyama, T , et al, *Japanese Society of Mechanical Engineers Bulletin*, Oct 1980, 23(184) p 1646-1654, 14 refs
Ground water, Hydrology, Heat transfer, Heat sources, Wells, Thermal properties, Seasonal variations, Water reserves, Analysis (mathematics).

35-1965
Building under cold climates and on permafrost; collection of papers from a U.S.-Soviet joint seminar, Leningrad, USSR.
U S -Soviet Joint Seminar on Building under Cold Climates and on Permafrost, Leningrad, June 24-29, 1979, *U S Army Cold Regions Research and Engineering Laboratory, Spec* 1980, SR 80-40, 365p , ADA-097 516, Refs passim For individual papers see 35-1966 through 35-1986
U S Department of Housing and Urban Development, U S. Army Corps of Engineers
Cold weather construction, Buildings, Permafrost beneath structures, Climatic factors, Meetings.

35-1966
Architectural planning solutions of urban complexes: standard residential and public complexes in the Far North.
Platonov, G.D., Building under cold climates and on permafrost, collection of papers from a U.S.-Soviet joint seminar, Leningrad, USSR, U.S. Army Cold Regions Research and Engineering Laboratory, SR 80-40, Dec 1980, p.1-9.
Cold weather construction, Buildings, Urban planning, Design, Residential buildings, Building codes.

35-1967
Use of systems theory in the organization of construction management in the Far North.
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Cold weather construction, Buildings, Design, Models.

35-1968
Building construction technology under wintertime conditions: recent experience in interior Alaska.
Bennett, F.L., U.S. Army Cold Regions Research and Engineering Laboratory, SR 80-40, Building under cold climates and on permafrost: collection of papers from a U.S.-Soviet joint seminar, Leningrad, USSR, Dec. 1980, p.16-31, 6 refs.
Cold weather construction, Buildings, Heating, Portable shelters, Temperature effects.

35-1969
Prefabricated low-story construction with the use of light material structures for the Far North.
Sudakov, V.V., U.S. Army Cold Regions Research and Engineering Laboratory, SR 80-40, Building under cold climates and on permafrost, collection of papers from a U.S.-Soviet joint seminar, Leningrad, USSR, Dec. 1980, p.32-39.
Cold weather construction, Prefabrication, Construction materials, Design criteria, Foundations, Residential buildings.

35-1970
Solar air heating systems for high latitude cold climates using evacuated tubular solar collectors.
Ward, D.S., U.S. Army Cold Regions Research and Engineering Laboratory, SR 80-40, Building under cold climates and on permafrost: collection of papers from a U.S.-Soviet joint seminar, Leningrad, USSR, Dec 1980, p 40-53, 6 refs
Cold weather construction, Buildings, Heating, Solar radiation.

35-1971
Ice fog suppression in Arctic communities.
McFadden, T., MP 1357, U.S. Army Cold Regions Research and Engineering Laboratory, SR 80-40, Building under cold climates and on permafrost: collection of papers from a U.S.-Soviet joint seminar, Leningrad, USSR, Dec. 1980, p.54-65, 18 refs.
Ice fog, Fog dispersal, Chemical ice prevention, Visibility, Temperature effects, Films, Air temperature.

35-1972
Estimating washload produced by snowmelt erosion on small watersheds.
Rendon-Herrero, O., U.S. Army Cold Regions Research and Engineering Laboratory, SR 80-40, Building under cold climates and on permafrost: collection of papers from a U.S.-Soviet joint seminar, Leningrad, USSR, Dec. 1980, p.66-83, 20 refs
Snowmelt, Soil erosion, Watersheds, Water erosion, Suspended sediments.

35-1973
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Porkhaev, G.V., et al, U.S. Army Cold Regions Research and Engineering Laboratory, SR 80-40, Building under cold climates and on permafrost, collection of papers from a U.S.-Soviet joint seminar, Leningrad, USSR, Dec. 1980, p.85-96, 4 refs
Fedorovich, D.I
Permafrost beneath structures, Permafrost thermal properties, Buildings, Stefan problem, Heat transfer, Frozen ground mechanics, Boundary layer, Soil temperature, Soil water, Analysis (mathematics), Engineering, Freeze thaw cycles.

35-1974
Analysis of foundations in permafrost.
Vialov, S.S., et al, U.S. Army Cold Regions Research and Engineering Laboratory, SR 80-40, Building under cold climates and on permafrost, collection of papers from a U.S.-Soviet joint seminar, Leningrad, USSR, Dec. 1980, p 97-117, 10 refs
Dokuchaev, V.V.
Permafrost beneath structures, Permafrost thermal properties, Bearing strength, Foundations, Frozen ground strength, Freeze thaw cycles, Soil creep, Ground thawing, Rheology, Analysis (mathematics).

35-1975
Design of foundations in areas of significant frost penetration.
Linell, K.A., et al, MP 1358, U.S. Army Cold Regions Research and Engineering Laboratory, SR 80-40, Building under cold climates and on permafrost, collection of papers from a U.S.-Soviet joint seminar, Leningrad, USSR, Dec. 1980, p 118-184, 48 refs
Lobacz, E.F., Stevens, H.W.
Permafrost beneath structures, Foundations, Freeze thaw cycles, Permafrost hydrology, Permafrost distribution, Frozen ground strength, Frost penetration, Soil mechanics, Heat transfer, Slope protection, Design.

35-1976
Design of foundations for buildings in discontinuous permafrost.
Phukan, A.H., U.S. Army Cold Regions Research and Engineering Laboratory, SR 80-40, Building under cold climates and on permafrost, collection of papers from a U.S.-Soviet joint seminar, Leningrad, USSR, Dec. 1980, p 185-203, 17 refs.
Discontinuous permafrost, Foundations, Permafrost beneath structures, Buildings, Freeze thaw cycles, Engineering, Design.

35-1977
Foundations on complex permafrost soils.
Velli, V.J., U.S. Army Cold Regions Research and Engineering Laboratory, SR 80-40, Building under cold climates and on permafrost, collection of papers from a U.S.-Soviet joint seminar, Leningrad, USSR, Dec 1980, p 204-217
Permafrost beneath structures, Foundations, Frozen ground strength, Bearing strength, Static stability, Thermokarst development.

35-1978
Construction of piling foundations and increasing their bearing capacity in frozen soils.
Sadovskii, A.V., et al, U.S. Army Cold Regions Research and Engineering Laboratory, SR 80-40, Building under cold climates and on permafrost: collection of papers from a U.S.-Soviet joint seminar, Leningrad, USSR, Dec. 1980, p.218-228
Targulian, I.U.O
Foundations, Pile structures, Permafrost beneath structures, Frozen ground strength, Bearing strength, Boreholes, Drilling, Pile driving.

35-1979
Improvement of bearing capacity of pipe piles by corrugations.
Thomas, H.P., et al, U.S. Army Cold Regions Research and Engineering Laboratory, SR 80-40, Building under cold climates and on permafrost, collection of papers from a U.S.-Soviet joint seminar, Leningrad, USSR, Dec 1980, p.229-234, 1 ref.
Luscher, U
Pipeline supports, Pipes (tubes), Bearing strength, Permafrost preservation, Cold weather construction, Frozen ground, Corrugating.

35-1980
Performance of natural convection heat exchange system for subgrade cooling of permafrost.
Barthelemy, J.L., U.S. Army Cold Regions Research and Engineering Laboratory, SR 80-40, Building under cold climates and on permafrost, collection of papers from a U.S.-Soviet joint seminar, Leningrad, USSR, Dec. 1980, p.235-261, 13 refs
Permafrost beneath structures, Buildings, Foundations, Subgrade maintenance, Soil stabilization, Cooling systems, Permafrost preservation, Thermal insulation, Heat transfer, Cold chambers, Geothermy, Analysis (mathematics).

35-1981
Cryo-anchor-proven performance for Arctic foundation stabilization.
Cady, E.C., U.S. Army Cold Regions Research and Engineering Laboratory, SR 80-40, Building under cold climates and on permafrost, collection of papers from a U.S.-Soviet joint seminar, Leningrad, USSR Dec 1980, p 262-278, 1 ref
Permafrost beneath structures, Foundations, Soil stabilization, Heat pipes, Heat transfer, Refrigeration, Equipment, Frozen ground mechanics, Permafrost thermal properties, Geothermy.

35-1982
Thermal behavior in a concrete structure in interior Alaska.
Anderson, F.A., U.S. Army Cold Regions Research and Engineering Laboratory, SR 80-40, Building under cold climates and on permafrost, collection of papers from a U.S.-Soviet joint seminar, Leningrad, USSR, Dec. 1980, p 279-290, 4 refs.
Concrete structures, Cold weather construction, Concrete strength, Thermal properties, Thermal stresses.

35-1983
Regulated set concrete for cold weather construction.
Sayles, F.H., et al, MP 1359, U.S. Army Cold Regions Research and Engineering Laboratory, SR 80-40, Building under cold climates and on permafrost, collection of papers from U.S.-Soviet joint seminar, Leningrad, USSR, Dec 1980, p 291-314, 8 refs
Houston, B.J.
Cold weather construction, Winter concreting, Concrete strength, Concrete heating, Compressive properties, Cements, Concrete curring, Concrete freezing, Countermeasures, Temperature effects.

35-1984
Design of thermoactive forms and pouring concrete structures in thermoactive forms in conditions of the northern zone.
Topchii, V.D., U.S. Army Cold Regions Research and Engineering Laboratory, SR 80-40, Building under cold climates and on permafrost collection of papers from U.S.-Soviet joint seminar, Leningrad USSR, Dec 1980, p.315-321
Cold weather construction, Winter concreting, Concrete strength, Concrete heating, Concrete structures, Thermal conductivity, Concrete hardening, Heat transfer, Mass transfer.

35-1985
Excavation of frozen materials.
Moore, H.E., et al, MP 1360, U.S. Army Cold Regions Research and Engineering Laboratory, SR 80-40 Building under cold climates and on permafrost, collection of papers from U.S.-Soviet joint seminar Leningrad USSR, Dec 1980, p 323-345, 14 refs
Sayles, F.H
Cold weather construction, Excavation, Frozen ground strength, Earthwork, Construction equipment, Maintenance, Cold weather operation, Cold weather survival, Temperature effects, Flood control

35-1986
Using explosives to excavate frozen ground.
Tart, J.G., et al, U.S. Army Cold Regions Research and Engineering Laboratory, SR 80-40, Building under cold climates and on permafrost, collection of papers from U.S.-Soviet joint seminar, Leningrad USSR Dec 1980, p 246-265, 4 refs
Orvard, L.L
Excavation, Frozen ground strength, Explosives, Cold weather construction, Blasting, Safety, Permafrost, Earthwork.

35-1987
Buoyancy effects on heat, mass and momentum transfer during the melting of a horizontal ice sheet above fresh or saline water flowing at laminar Reynolds numbers.
Srivastava, P.K., Saint John's, Memorial University of Newfoundland, Dec 1979, 110p., M.Eng thesis 23 refs Unpublished manuscript
Ice melting, Ice sheets, Water flow, Heat transfer, Mass transfer, Buoyancy, Ice water interface, Boundary layer, Convection, Computer applications, Viscosity, Density, Temperature effects.

35-1988
Permafrost engineering research on Spitsbergen.
Gregersen, O., *Frost i jord*, June 1980, No 21, p 3-6
Permafrost control, Cold weather construction, Foundations, Engineering, Research projects.

35-1989
Practical frost protection of buried pipes. [Frostsikring av ledninger i praksis]
Gundersen, P. *Frost i jord*, June 1980, No 21, p 7-22. In Norwegian with English summary
Underground pipelines, Frost protection, Pipeline insulation, Thermal insulation, Thermal properties, Utilities.

35-1990
Permafrost conditions in Spitsbergen.
Liestöl, O. *Frost i jord*, June 1980, No 21, p 23-28, 19 refs. This is a short version of 35-4288
Permafrost hydrology, Permafrost depth, Pingos, Ground water, Glacial hydrology, Springs (water), Temperature effects, Air temperature.

35-1991
Pore-water pressure profile of a freezing soil.
Fukuda, M., et al. *Frost i jord*, June 1980, No 21, p 31-36, 7 refs
Kuhn, J N
Soil freezing, Soil water migration, Water pressure, Water content, Water table, Frost heave, Ice lenses, Experimentation.

35-1992
Permafrost and construction work in Svalbard. [Permafrost og byggearbeider pa Svalbard]
Mellerud, O.T., *Frost i jord*, June 1980, No 21, p 39-43. In Norwegian
Permafrost preservation, Cold weather construction, Foundations, Earthwork, Soil stabilization.

35-1993
On the theory of frost heave.
Förland, T., et al, *Frost i jord*, June 1980, No 21, p 45-48, 8 refs.
Kjeldstrup Rathje, S
Frost heave, Heat transfer, Mass transfer, Soil water, Thermodynamics, Water temperature, Water pressure, Ground ice, Theories

35-1994
Segregated ice frost [illegible] and thermokarst phenomena in permafrost regions [Glace de ségrégation, soulèvement [illegible] sol et phénomènes thermokarstiques dans les régions à pergélisol]
Pissart, A., *Societe geographique de Liège Bulletin*, June 1975, 11(11), p 89-96. In French with English summary. 15 refs
DLC QL1 S695
Ice wedges, Frost heave, Thermokarst, Permafrost depth, Ice lenses, Ground ice.

35-1995
Study of a section taken across a rampart of a pingo scar in Brackvenn. [Etude d'une coupe dégagée a travers un rempart d'une cicatrice de pingo de la Brackvenn]
Bastin, B., et al, *Societe geologique de Belgique Annales*, 1974, Vol 97, p 341-357. In French with English summary. 20 refs
Juvigné, E., Pissart, A., Thorez, J.
Pingos, Ground ice, Ice formation, Soil composition, Weathering.

35-1996
"Vivi.rs" in the Hautes Fagnes are traces of periglacial hillocks; but were they actually pingos [Les viviers des Hautes Fagnes sont des traces de buttes périglaciaires. Mais s'agissait-il réellement de pingos?]
Pissart, A., *Societe geologique de Belgique Annales*, 1974, Vol 97, p 359-381. In French with English summary. Refs p 379-381
Pingos, Ice lenses, Ground water, Weathering, Discontinuous permafrost, Periglacial processes.

35-1997
Gravel removal studies in Arctic and Subarctic floodplains in Alaska.
Woodward-Clyde Consultants, U S Fish and Wildlife Service, Technical Report, FWS/OBS-80/80, June 1980, 403p., Refs. passim
Gravel, Excavation, Rivers, Erosion, Ice conditions, Environmental impact, Floods, Plains, Hydrology, Mining, United States—Alaska.

35-1998
Time constraints on measuring building R-values
Flanders, S N., *U.S Army Cold Regions Research and Engineering Laboratory*, June 1980, CR 80-15, 30p., ADA-089 712, 18 refs.
Cold weather construction, Construction materials, Thermal properties, Thermal conductivity, Buildings, Heat flux, Time factor, Computer applications, Analysis (mathematics).
This report discusses the time constraints on measuring the thermal resistance (R-value) of building components. Temperature changes on either side of a building component perturb measurement accuracy. Long measurement times and measurement times corresponding to a consistent diurnal cycle can be satisfactory. However individual temperature changes cause significant error for shorter measurement periods. This report shows how to scale the thermal properties of individual constituent materials in a building element to determine its characteristic thermal time constant. The report then demonstrates the size of measurement error resulting from a variety of changes in temperature with representative walls of different time constants

35-1999
Block motion from detonations of buried near-surface explosive arrays.
Blouin, S., *U S Army Cold Regions Research and Engineering Laboratory*, Dec 1980, CR 80-26, 62p., ADA-095 492, 31 refs
Rock mechanics, Explosion effects, Explosives, Subsurface structures, Soil mechanics.
A vital concern to the survivability of hardened underground structures in rock is the relative displacement induced along geologic discontinuities by nearby explosions. Such displacement, commonly termed block motion, can occur along faults, joints, bedding planes and other structural weaknesses in rock. This report documents all occurrences of block motion observed during the development of DIHEN, a series of shallow-buried high explosive experiments designed to simulate the direct induced ground motions from a nuclear surface burst. Instances of block motion are described, along with pertinent details of the explosive arrays, geology and ground motion fields. The influence of these and other factors on the direction and magnitude of block motion is discussed

35-2000
Clearing ice-clogged shipping channels.
Vance, G P., *U S Army Cold Regions Research and Engineering Laboratory*, Dec 1980, CR 80-28, 13p., ADA-095 490, 18 refs
Channels (waterways), Ice removal, Ice navigation, Ice conditions, River ice, Stream flow, Water level.
This report investigates the feasibility of clearing ice from the shipping channel of the St Marys River. Four basic concepts are investigated: disposal under the ice, disposal on top of the ice, slurrying and rafting. Each technique was found to have application in limited portions of the river with the exception of disposal on top of the adjacent ice sheet, which is deemed feasible throughout the river system. Disposal onto the adjacent ice sheet will increase the free stream velocity less than 1.0 ft/s (<0.3 m/s) and raise the water level less than 1.0 ft (0.30 m). Further model and field tests are recommended to validate the findings of this report

35-2001
Fate and effects of crude oil spilled on subarctic permafrost terrain in interior Alaska.
Johnson, L A., et al, *U S Army Cold Regions Research and Engineering Laboratory*, Dec 1980, CR 80-29, 67p., ADA-095 491, Refs p 41-43.
Sparrow, E B., Jenkins, T.F., Collins, C M., Davenport, C V., McFadden, T
Oil spills, Permafrost, Vegetation, Damage, Soil microbiology, Thaw depth, Slopes, Freeze thaw cycles.
This study was conducted to determine the short- and long-term physical, chemical and biological effects of spills of hot Prudhoe Bay crude oil on permafrost terrain near Fairbanks, Alaska. Two experimental oil spills, one in winter and one in summer of 7570 liters (2000 gallons) were made at a forest site. The winter-spill oil moved within the surface moss layer beneath the snow. The summer-spill oil moved primarily below the moss in the organic soil. The oil moved faster and further downslope in the summer spill. Oil in the winter spill stopped during the first day but remobilized and flowed further downslope in the spring. The total area affected by the summer spill was nearly one and one-half times as large as that affected by the winter spill. The initial heat of the spilled oil had little measurable thermal effect on the soil. However, thaw depth significantly increased following two full thaw seasons. The greatest increases occurred beneath oil blackened surfaces. Evaporation of volatile components is the most significant weathering process in the first two years. Volatiles evaporated have from surface oil than from oil carried deeper into the soil profile. Microbial degradation has not been observed. The indigenous soil microbial populations responded differently to winter and summer oil applications, ranging from inhibition to stimulation with stimulation appearing to predominate. Vegetation showed both immediate and long-term damage. Damage was greatest near the top of the slope and in areas with surface oil. Deciduous species showed damage faster than evergreen species

35-2002
Field cooling rates of asphalt concrete overlays at low temperatures.
Eaton, R A., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Dec 1980, CR 80-30, 11p., ADA-095 489, 7 refs.
Berg, R L
Temperature effects, Bituminous concretes, Cooling rate, Low temperature tests, Roads, Pavements, Compaction.
Six overlay test sections were placed on an existing test road in Hanover, New Hampshire, to gain experience in compaction of asphalt pavements at rolling temperatures as low as 150 F. The asphalt cement and aggregate used had mix characteristics similar to those of the mix expected to be used for a proposed overlay project at Thule Air Base, Greenland. Results of the overlay tests showed that computer-modeled cooling curves can be accurate predictors of the actual asphalt overlay cooling with time. In Addition the effects of temperature upon compaction were determined and it was found that nuclear gauges when used and calibrated properly successfully monitored mix density changes during compaction

35-2003
Icing on structures.
Minsk, L.D., *U S Army Cold Regions Research and Engineering Laboratory*, Dec 1980, CR 80-31, 18p., ADA-095 474, 34 refs
Structures, Icing, Ice accretion, Ice loads, Ice prevention, Humidity, Wind pressure, Ice cover thickness.
Ice accretion on structures built on the earth's surface is discussed. Sources of water are the atmosphere or water bodies near or surrounding the structure. Ice types include frost, rime, glaze and spray, properties and conditions governing their formation are presented. Methods of estimating accretion rates and total accretion on structures are given and extracts from U S and Canadian codes for ice and wind loads on structures are included. Techniques for preventing ice accretion or removing accreted ice are presented

35-2004
Thermography control of heat insulation and tightness of buildings.
Avén, B., et al, *U S Army Cold Regions Research and Engineering Laboratory*, Nov 1980, TL 753, 214p., ADA-095 610. Translation of unidentified Swedish source. 21 refs
Pettersson, B
Buildings, Construction materials, Cold weather construction, Thermal insulation, Thermal conductivity, Heat loss, Temperature measurement, Infrared photography, Surface temperature.
The purpose of this publication is to prevent the usefulness of the heat camera (IR camera) and its reliability for locating and charting deficiencies in insulation and tightness of completed buildings and to indicate an appropriate procedure for routine application of the thermography method

35-2005
Embankment dams on permafrost in the USSR.
Johnson, T.C., et al, *U S Army Cold regions Research and Engineering Laboratory*, Dec 1980, SR 80-41, 59p., ADA-095 141, 24 refs
Sayles, F H
Earth dams, Permafrost, Embankments, Thermal regime, USSR—Siberia.
The report documents a study tour of the USSR to determine the current practices in analyzing the thermal regime of embankment dams on permafrost and in application of these practices in designing dams. The results of visits to earth and rockfill dams on permafrost in Siberia are summarized. Discussions with the designers of the dams, and with a construction manager and an operations manager, are recorded. The leading Soviet engineers and scientists specializing in analysis of the thermal regime of embankment dams on permafrost were consulted and the discussions are summarized. Experimental facilities of institutes concerned with this question also were inspected

35-2006
Structural evaluation of porous pavement test sections at Walden Pond State Reservation, Concord, Massachusetts.
Eaton, R A., et al, *U S Army Cold Regions Research and Engineering Laboratory*, Dec 1980, SR 80-39, 43p., ADA-094 606, 5 refs
Marzbaman, P C
Bituminous concretes, Pavements, Porous materials, Bearing strength, Concrete strength, Structural analysis, Cold weather performance, Loads (forces), Deformation, Tests.
This report presents the results of repeated load tests upon various porous pavement test sections constructed on an overflow parking lot at Walden Pond State Reservation in Concord, Massachusetts. From the fall of 1977 to the spring of 1979, the seasonal structural responses of the sections were monitored with a repeated plate bearing apparatus. After the first set of fall and spring tests, some sections were reconstructed because the asphalt concrete pavement was not porous enough. Test points were added or replaced to accommodate the reconstructed sections. Results show that the dense asphalt concrete distributed the load over a greater area than the porous asphalt concrete. Thicker pavements were stronger for both dense and porous asphalt concrete, and the deflection basin depth and diameter changed proportionately to applied loads

35-2007
Rigs in VANguard to slope. *Alaska industry*, Oct 1980, 12(10), p 12, 14
Drills, Oil recovery, Cold weather operation, Equipment.

35-2008
Gasoline: progress is slow but encouraging. *Alaska industry*, Oct 1980, 12(10), p 18-19, 45-47
Gas pipelines, Pipes (tubes), Pressure, Freezing points, Design, Cost analysis.

35-2009
Magcobar customizes drill muds. *Alaska industry*, Oct 1980, 12(10), p 31
Drilling fluids, Offshore drilling.

35-2010
Plate loading and vane-cone test measurements for fresh and sintered snow.
Yong, R N., et al. *McGill University, Montreal Geotechnical Research Centre Soil mechanics series*, Aug 1980. No 43, 32p., 2 refs
Muro, T
Snow compression, Static loads, Shear strength, Penetration tests, Snow deformation, Snow density, Loads (forces), Grain size, Sintering, Plates, Tests.

35-2011
Oceanographic data report from the north shore of the Gulf of St. Lawrence.
Lewis, J.B., et al. *McGill University, Montreal Marine Sciences Centre Manuscript*, 1980, No 34, 52p
Reiswig, H M., Lallin, C., Czupka-Luzzi, C
Oceanography, Water temperature, Salinity, Oxygen, Marine biology, St. Lawrence, Gulf.

35-2012
Guide for operating cars and light trucks on a floating ice sheet; using thin plate analytical solutions.
Johnson, P., Fairbanks, Alaska, Phil Johnson Engineering, Sep 1980, 29p., 19 refs
Ice crossings, Vehicles, Floating ice, Bearing strength, Ice cover thickness, Dynamic loads, Tensile properties, Stresses, Loads (forces), Ice sheets, Safety.

35-2013
Lessons learned from constructing the Trans-Alaska oil pipeline. Report to the Congress of the United States.
U S General Accounting Office Comptroller General, June 15, 1978, 56p EMD-78-52.
Pipelines, Cold weather construction, Legislation, Hot oil lines, Crude oil.

35-2014
Air-to-air heat recovery devices for small buildings. Interim report.
Zarling, J P., Fairbanks, University of Alaska, School of Engineering, Jan. 1981, 19p., 10 refs
Cold weather tests, Heat recovery, Residential buildings, Thermal insulation, Equipment, Design.

35-2015
North Slope Borough comprehensive policy plan, Haul Road area. Barrow, Alaska, June 1980. 34p
Roads, Environmental protection, Legislation, United States—Alaska—Haul Road.

35-2016
Student Science Training program—1979; Juneau icefield, Alaska and the Atlin region, B.C.-Yukon, Canada. Final report.
Miller, M.M., et al, Seattle, Wa., Foundation for Glacier and Environmental Research, Dec 1979, 15p
Miller, J.W
Research projects, Land development, Natural resources, Environmental protection, Glaciers, Personnel, United States—Alaska—Juneau.

35-2017
1979 Undergraduate Research Participation program; Juneau Icefield, Alaska and the Atlin region, B.C.-Yukon, Canada. Final report.
Williams, G A., et al, Seattle, Wa., Foundation for Glacier and Environmental Research, Apr 1980. 34p
Miller, M M
Research projects, Glacier flow, Geological surveys, Paleoclimatology, Glacier mass balance, Glacier surfaces, Geomorphology, Equipment, Ice structure, Personnel, United States—Alaska—Juneau.

35-2018
Final technical development plans, Arctic: Beaufort Sea (Joint Federal/State Sale), Beaufort Sea (Sale No.71), Chuckchi Sea (Sale No.85), Hope Basin (Sale No.86). Fiscal Year 1981.
Weller, G., coord, U S National Oceanic and Atmospheric Administration, Aug 15, 1980, 166p
Research projects, Sea ice, Water pollution, Permafrost, Environmental protection, Ocean environments, Ecology, Cost analysis, Beaufort Sea, Chukchi Sea.

35-2019
Final technical development plans, Bering Sea: Norton Sound (Sale No.57), St. George Basin (Sale No.70), North Aleutian Shelf (Sale No.75), Navarin Basin (Sale No.83). Fiscal year 1981.
Carter, J A., coord, U S National Oceanic and Atmospheric Administration, Aug 15, 1980, 209p
Bruce, H E., coord
Sea ice, Research projects, Oceanography, Ecology, Water pollution, Environmental protection, Permafrost, Ice conditions, Remote sensing, Bering Sea.

35-2020
Final technical development plans, Gulf of Alaska: North East Gulf of Alaska (Sale No.55), Lower Cook Inlet (Sale No.60), Kodiak (Sale No.62). Fiscal Year 1981.
Hameedi, J., coord, U S National Oceanic and Atmospheric Administration, Aug 15, 1980, 130p
Becker, P., coord, Bruce, H E., coord
Research projects, Environmental protection, Water pollution, Sea ice, Permafrost, Marine biology, Oil spills, Geology, Logistics, Cost analysis, United States—Alaska—Gulf of Alaska.

35-2021
Builder's guide to water and energy.
Seifert, R.D., et al, *Alaska University Institute of Water Resources Report*, Aug 1980, No 100, 78p., Refs p 59-71 Microfiche only
Dwight, L P
Permafrost hydrology, Cold weather construction, Drilling, Wells, Water supply, Sewage treatment, Heating, Soil conservation, Water reserves.

35-2022
Index and analysis of surface temperature and wind frequency data.
Rayner, J N., *McGill University, Montreal Arctic Meteorology Research Group Publication in meteorology*, Apr 1961, No 40, 18p + tables, 7 refs
Air temperature, Wind (meteorology), Surface temperature, Statistical analysis, Meteorological data, Polar regions.

35-2023
Arctic animal ecology.
Remmert, H., Berlin, Springer-Verlag, 1980, 250p., Refs. p.235-245
Ecology, Animals, Marine biology, Climatic factors, Biomass, Diurnal variations, Seasonal variations, Polar regions.
This book, as a result of ecological and physiological research in the Arctic, describes factors typical to the area and their effect on the animal life there A review of conditions in the Antarctic is included to demonstrate the great differences between the two polar regions

35-2024
Morphometric features of the antarctic ice cover. (Morfometricheskie kharakteristiki lednikovogo pokrova Antarktidy).
Aver'ianov, V G., *Sovetskaia antarkticheskaia ekspeditsiia Informatsionnyi biulleten'*, 1980, No 100, p 5-9, 15 refs., In Russian
Ice sheets, Mass balance, Ice cover thickness, Ice volume, Antarctica.
The primary morphometric characteristics of continental ice cover are area mean surface altitude mean thickness of land and shelf ice ice volume and average altitude of the plateau The author reviews the available literature on these aspects of the antarctic ice cover, much of which has been collected recently by Soiuzmorniproekt during its cartographic activities Project data are compared with those of other workers and are found to provide a more precise picture for use in water and mass balance estimates

35-2025
Determining the components of antarctic ice cover mass exchange with the atmosphere. (Otsenka sostavliaiushchikh massoobmena lednikovogo pokrova Antarktidy s atmosferoi).
Aver'ianov, V G., *Sovetskaia antarkticheskaia ekspeditsiia Informatsionnyi biulleten'*, 1980, No 100, p.10-16, 18 refs., In Russian
Ice sheets, Mass balance, Precipitation (meteorology), Antarctica.
By using an equation for mass exchange between ice cover and atmosphere, the authors compute the components of mass exchange in g sq cm yr and total values in cu km/yr Precipitation intensity is 18 1 g sq cm yr the yearly total over the ice cover 2524 cu km of water

35-2026
Use of water balance method to evaluate precipitation measurement in Antarctica. (Ispol'zovanie metoda vodnogo balansa dlia otsenki osadkomernykh nabliudenii v Antarktide).
Aver'ianov, V G., *Sovetskaia antarkticheskaia ekspeditsiia. Informatsionnyi biulleten'*, 1980, No 100, p 17-22, 15 refs., In Russian.
Precipitation (meteorology), Mass balance Precipitation gages, Water balance, Antarctica—Mirnyy Station, Antarctica—Vostok Station.
Conventional methods of measuring solid precipitation are not reliable in Antarctica Many workers have attempted to use correction coefficients to solve the problem of inaccuracie due to wind blown precipitation, but they have not proven satisfactory A chart is offered to show that for one wind speed, corrected precipitation figures may vary 200-400 depending on the coefficient used Another, indirect method was tried at Mirnyy and Vostok Stations A water balance equation setting forth atmospheric precipitation as the sum of accumulation sublimation wind transfer and water flow yields errors for annual totals of 1% and 18 respectively for Mirnyy and Vostok

35-2027
Thermal regime of ice cover during thaw. (Teplovoi rezhim lednikovoi poverkhnosti v period taianiia).
Klokov, V D., *Sovetskaia antarkticheskaia ekspeditsiia Informatsionnyi biulleten'*, 1980, No 100, p.23-28, 7 refs., In Russian.
Ice sheets, Heat loss, Ice heat flux, Thawing, Thermal analysis, Thermal regime, Antarctica.
Using data from field work near Molodezhnaya, summer totals for all components of heat balance of the thawing glacier surface in coastal Antarctica were identified and the daily fluctuations recorded Radiation balance, active layer heat flow, turbulent heat and moisture flow heat expended on thawing and daily changes in heat loss are discussed Heat loss occurs as follows 54% for evaporation, 29% for thawing, and 17% for heating of the active layer Translating energy loss to mass losses led to the conclusion that evaporation and thawing account for 20 and 80 respectively of summer surface ablation losses in coastal Antarctica

35-2028
Extent of meltwater areas in Antarctica (Ploshchad' ratonov zhidkogo stoka v Antarktide).
Klokov, V D., *Sovetskaia antarkticheskaia ekspeditsiia Informatsionnyi biulleten'*, 1980, No 100, p.29-35, 12 refs., In Russian
Glacier ablation, Glacier melting, Slopes, Meltwater, Antarctica.
Meltwater along the antarctic coast (except for the Antarctic Peninsula) comes only from areas without snow-firn layers These areas occur at the edge of ice cover and in mountains The extent of snow-free ice varies with the time of year, maximum surface is seen at the end of summer after thawing ends In order to establish a connection between pitch of glacier slope and lack of snow cover, topographic maps of 7 antarctic areas were used Forty two percent of meltwater areas are on slopes of glaciers, 16 24% more on nearby glacier forms Overall extent of meltwater-producing area equals 92 thousand sq km a figure quite close to estimates of the glacial ablation zone (excluding the Peninsula)

35-2029
Preliminary estimate of ice cover flow in Antarctica using seismic data. (Predvaritel'naia otsenka tverdogo stoka lednikogo pokrova Antarktidy po dannym seismicheskikh nabliudenii).
Sytinskii, A.D., et al, *Sovetskaia antarkticheskaia ekspeditsiia Informatsionnyi biulleten'*, 1980, No 100, p 36-40, 9 refs., In Russian
Oborina, S F
Seismic surveys, Ice sheets, Glacier ice, Icebergs, Analysis (mathematics), Antarctica—Mirnyy Station.
Seismograms were taken near Mirnyy to determine the intensity of glacier dynamic processes in the coastal zone and the seasonal pattern of iceberg calving This phenomenon is assumed to account for most ice loss in Antarctica Number of icebergs calved is determined from the distance from the station based on seismic data, at Mirnyy about 100 km, which in turn yields number of calving events, and the average number of icebergs each incident produces Monthly variations in ice tremors and their intensity are graphed Average yearly output predicted from the formulas corresponds to reported field data If there were a known relationship between number of icebergs and their size, then total volume could be computed by another formula given in the article, which would permit error to be reduced to a minimum

35-2030
Age of ice in drill holes at Vostok and Vostok-1. (Vozrast l'da v burovykh skvazhinakh na stantsiiakh Vostok i Vostok-1).
Shemskii, P A., et al, *Sovetskaia antarkticheskaia ekspeditsiia. Informatsionnyi biulleten'*, 1980, No 100, p 41-48, 2 refs., In Russian.
Korotkevich, E S., Larina, T B
Drill core analysis, Ice cores, Analysis (mathematics), Climatic changes, Ice temperature, Antarctica—Vostok Station.
Chronology of climatic changes identified by ice isotope studies is arrived at by using ice age However, age of ice cannot yet be determined by isotope methods, data on glacier dynamics must be used The problem of computing ice age in a glacier is solved here with data and results from deep coring work at Vostok and Vostok-1 A simple two-dimensional model, allowing investigation of drill hole changes in ice density and temperature with depth and based on a rectilinear Cartesian coordinate system was developed Results ice age as a function of accumulation rate at both stations are given in charts Taking the age-time correlation established here, temperature variations affect ice age the duration of the Holocene warm period drops to 11 thousand years from 14-15 and the cold period increases, which more closely approximates northern hemisphere climatic cycles

35-2031
Variation in ice sheet thickness at Vostok and Vostok-1. [Izmenenie tolshchiny ledníkovogo pokrova na stantsiiakh Vostok i Vostok-1].
Shumskiĭ, P A , et al. *Sovetskaia antarkticheskaia ekspeditsiia. Informatsionnyĭ biulleten'*, 1980, No 100, p 49-53, 4 refs In Russian
Larina, T B., Petrov, V N
Drill core analysis, Ice mechanics, Ice deformation, Mathematical models, Ice sheets, Antarctica—Vostok Station.
To compute the vertical component of ice flow velocity from deformation data the nature of changes in rate of deformation along a vertical profile of the ice sheet must be known, these in turn depend on rheological parameters and on depth related changes in density and temperature A fairly accurate resolution of these questions for Vostok and Vostok 1 was made possible because of deep core drilling work A mathematical model to determine ice budget along a vertical profile is suggested and applied to field data Results indicate that at Vostok between 1964 and 1969 a slow drop in the ice cover surface occurred alternating with a rise in places within the polygon studied while at Vostok 1 on the average an even slower rise in the surface took place These findings agree with other data indicating that the ice sheet is near equilibrium

35-2032
Borehole compression in antarctic ice cover. [Szhatie burovykh skvazhin v lednikovom pokrove Antarktidy].
Shumskiĭ, P A , et al. *Sovetskaia antarkticheskaia ekspeditsiia Informatsionnyĭ biulleten'*, 1980, No 100, p 54-58, 1 ref , In Russian
Larina, T B , Barkov, N I.
Ice mechanics, Ice deformation, Stresses, Boreholes, Drilling, Compressive properties, Antarctica—Vostok Station.
Models for estimation of stress-deformation state in ice around bore-free boreholes and of rheological characteristics are developed and applied to data on compression rate of boreholes at Vostok Normal stresses and deformation rate in ice at the borehole wall increase with depth but do not depend on borehole diameter or time, while compression rate drops directly as diameter decreases The results allow an approximation of the stress deformation state of ice around boreholes and a forecast of compression rate at a given depth

35-2033
Some features of snow accumulation on a Mirnyy-Vostok profile. [Nekotorye osobennosti nakoplenia snega na profile Mirnyi-Vostok].
Lipenkov, V.IA , *Sovetskaia antarkticheskaia ekspeditsiia. Informatsionnyĭ biulleten'*, 1980, No 100, p 59-65, 8 refs , In Russian
Snow accumulation, Antarctica—Mirnyy Station, Antarctica—Vostok Station.
Snow accumulation between Mirnyy and Vostok was studied on summer traverses from 1970-1973 New characteristics of snow accumulation distribution along the profile were noted Four factors are implicated in annual variability random fluctuation attributable to data errors accumulation fluctuations caused by the microstructure of the snow cover, accumulation variation due to the relief of the snow-glacier surface and wind action transfer factor, and the variability of general climatic conditions of snow accumulation There are four boundaries which correspond to pronounced changes in the position of mean accumulation values 260 m, 400 m 540 m and 1140 m from Mirnyy Zonal change in accumulation is seen against the background of an overall increase in snow accumulation, its spatial and temporal variation one goes deeper into the continent

35-2034
Nature of snow cover density distribution along a Pionerskaya Station—Dome C profile. [Kharakter prostranstvennogo raspredelenia plotnosti snezhnogo pokrova po marshrutu stantsiia Pionerskaia – kupol "C"].
Dmitgerov, M B , et al *Sovetskaia antarkticheskaia ekspeditsiia Informatsionnyĭ biulleten'*, 1980, No 100, p 66-69, In Russian.
Korolev, P A
Snow density, Snow accumulation, Antarctica—Pionerskaya Station, Antarctica—Dome C.
In order to gather snow cover density information for annual accumulation calculations and for statistical studies of density distribution, extensive density measurements were carried out between Pionerskaya and Dome C in Jan -Mar 1977 As table 1 shows, density is distributed asymmetrically A binomial asymmetric distribution analogous to the usual distribution of snow cover strength values gives a good approximation of empirical data Thus snow cover density in the annual accumulation layer yields a picture of the statistical character of spatial density distribution and also shows that snow cover density can serve as an indicator of glaciological and geographical zonality to the extent that the total effect of such important processes as melting and wind ablation are quantitatively allowed for

35-2035
Orientation of optical axes of ice crystals from Vostok Station ice cover. [Orientirovka opticheskikh osei zeren l'da v lednikovom pokrove na stantsii Vostok].
Portnov, V G , et al. *Sovetskaia antarkticheskaia ekspeditsiia Informatsionnyĭ biulleten'*, 1980, No.100, p 70-74, 5 refs , In Russian
Barkov, N I., Korableva, N A.
Ice crystal optics, Ice cores, Ice crystal nuclei, Ice crystal structure, Ice structure, Antarctica—Vostok Station.
Optical axis orientation in ice cover crystals was studied in a 952.5-m core from near Vostok Station The degree of regularity in crystal axis orientation is not consistent For example at 44.5 m ice crystal orientation regularity is not pronounced although there is a marked maximum at the center of the core while at 364.25 m the orientation approaches the vertical and is very consistent At greater depths the concentration at the center increases and the deviation of most crystals from the zenith does not exceed 12-17 Thus the most pronounced structural feature of Vostok ice cover is the subvertical optical ice crystal orientation increase with depth A mechanism to account for this phenomenon is outlined

35-2036
Horizontal cracks in deep ice cores from Vostok Station. [O gorizontal'nykh treshchinakh v kernakh l'da glubokoĭ skvazhiny na stantsii Vostok].
Portnov, V G , *Sovetskaia antarkticheskaia ekspeditsiia Informatsionnyĭ biulleten'*, 1980, No.100, p 75-79, 8 refs , In Russian
Ice crystal optics, Drilling, Stresses, Ice mechanics, Antarctica—Vostok Station.
Ice cores from electric thermal drills show a system of horizontal cracks These usually start at 60-70 m in both dry and kerosene-flooded cores Optical orientation of ice at 5-60 m is weak and nearly circles the core, while from 96.0 m a marked maximum appears in the center of the core, where up to 20° of the crystalloblasts axes are vertical As depth increases, the phenomenon becomes more pronounced Morphologically the cracks seen in cores are similar to each other and change with depth Their formation is connected with discontinuous stresses which develop along the weakened ice when the vertical component of drilling pressure in an optically homogeneous polycrystalline aggregate is removed

35-2037
Calculating elastic properties of ice at Vostok Station. [Opredelenie uprugikh kharakteristik l'da na stantsii Vostok].
Dmitriev, D N., et al, *Sovetskaia antarkticheskaia ekspeditsiia Informatsionnyĭ biulleten'*, 1980, No 100, p 80-84, 2 refs , In Russian
Terent'ev, V G
Ice elasticity, Ultrasonic tests, Ice cores, Antarctica—Vostok Station.
During the 21st and 22nd Soviet Antarctic Expeditions ultrasonic studies were done to determine the longitudinal and transverse rates of elastic wave transmission and variation with depth in ice core samples Work with a core taken near Vostok gave a picture of elastic wave characteristics in central Antarctica and demonstrated the feasibility of the particular ultrasonic equipment tested under antarctic conditions

35-2038
Oxygen-isotope analysis of Novolazarevskaya Glacier shelf ice cores. [Rezul'taty izotopno-kislorodnykh analizov kerna l'da shel'fovogo ledníka Novolazarevskogo].
Gordienko, F G , et al, *Sovetskaia antarkticheskaia ekspeditsiia Informatsionnyĭ biulleten'*, 1980, No 100, p 85-90, 15 refs , In Russian.
Savatiugin, L M
Ice cores, Oxygen isotopes, Glacier ice, Altitude, Temperature effects, Antarctica—Novolazarevskaya Station.
This article reports results of oxygen isotope studies on 55 samples from a core 447 m deep A table gives isotope composition of surface samples for Queen Maud Land ice cover and compares the data with that from neighboring areas to identify local factors playing a role The isotope profile is shown Using the correlation between isotope values and temperatures at which the precipitation occurred, the authors suggest that the first 154 m fell at -34 to -39C, 154-355 m at -43 to -50C and the lowest portion (355-448 m) at -51 to -58C The earliest layers must have fallen at higher altitudes while the recent one accumulated near the present drilling position Present knowledge of glacial flow is too sparse to allow precise identification of the accumulation area

35-2039
Tritium in ice near Molodezhnaya Station. [Tritii vo l'dy vblizi stantsii Molodezhnaia].
Herbert, D et al, *Sovetskaia antarkticheskaia ekspeditsiia Informatsionnyĭ biulleten'*, 1980, No 100, p 91-94, 7 refs , In Russian
Fröhlich, K , Schneider, M.M
Ice composition, Snow composition, Firn, Isotope analysis, Glacier alimentation, Ice density, Snow density, Density (mass volume), Antarctica—Molodezhnaya Station, Antarctica—Hays Glacier.
Snow ice and firn samples were taken from Hays Glacier in Jan 1976 and examined for tritium content A table gives tritium concentration depth of sample and density Average density of 0.45 g cu cm agrees with values of other workers Correlation between tritium concentration and depth is shown in a graph The authors derive an annual rate of 0.57 m of snow resulting in an accumulation rate of approximately 26 g sq cm cm-yr at given density

35-2040
Causes of mountain glacier oscillation in antarctic dry valleys. [Prichiny kolebanii gornykh lednikov Sukhikh dolin Antarktidy].
Miagkov, S M , *Sovetskaia antarkticheskaia ekspeditsiia Informatsionnyĭ biulleten* 1980, No 100, p 95-98, 4 refs , In Russian
Wind erosion, Glacier ablation, Glacier oscillation, Mountain glaciers, Glacier alimentation, Wind factors, Antarctica—Scott Glacier.
Because of low precipitation rates in high antarctic areas glaciers form only where wind creates snow buildup Mountain relief during glaciation was affected more by geotectonic uplift, and flooding of lowlands than by denudation and wind erosion The complex relation between climatic and geomorphological factors contributes to an understanding of mountain glaciation in a given regime The Scott Glacier exemplifies the following overall tendencies the occurrence of dry valleys and ablating glaciers generally above 1000 m a s l glacier formation on northern slopes and degradation on western exposures and shortening of some glaciers and elongation of others which were recently feeders of the Scott Glacier and have separated from it because of recent drops of 10-20 m in the level of the due to drops in sea level

35-2041
Evolution of McMurdo Oasis glaciers according to phototheodolite survey [Evoliutsia lednikov oazisa Mak-Merdo po dannym povtornoi fototeodolitnoi s"emki].
Miagkov, S M , *Sovetskaia antarkticheskaia ekspeditsiia Informatsionnyĭ biulleten'*, 1980, No 100, p 99-102, 5 refs , In Russian
Glacier mass balance, Glacier surveys, Glacier tongues, Glacier thickness, Antarctica—Meserve Glacier, Antarctica—Taylor Glacier.
A survey of several glaciers in the McMurdo Oasis was done in 1975-1976 Results are analyzed and compared to 1970-71 survey data The Ronne and Meserve Glaciers are in the mountains and are fed largely by snow blown from nearby highlands Taylor Glacier is an exit glacier and gets some additional snow from slopes All the glaciers are quite sensitive to warming, one or two warm summers when melting and meltwater flow reach the upper parts of the tongues where only dry ablation usually occurs can lead to significant thinning During the 5-yr period studied the glaciers thinned on the average about 0.5m However they appear to be in equilibrium no noticeable retreat occurred and changes over the period in both area and thickness are negligible

35-2042
Areas of bottom melting of ice cover in the Transantarctic Mountains. [Uchastki donnogo taianiia lednikovogo pokrova v rione Transantarkticheskikh gor].
Miagkov, S M , *Sovetskaia antarkticheskaia ekspeditsiia. Informatsionnyĭ biulleten'*, 1980, No 100, p 103-106, 7 refs., In Russian.
Glacier melting, Glacier thickness, Glacial geology, Glacier beds, Mountain glaciers, Glacial lakes, Moraines, Antarctica—Transantarctic Mountains.
New data on the thickness of the continental ice cover are used to derive a scheme showing where bottom melting occurs in the Transantarctic Mountains This in turn allows better description of the exaration activity of the glaciers The following conclusions are offered In both open and ice-covered mountain areas and also possibly in some coastal areas the glacial ice is usually frozen to its bed and consequently preserved the subglacial relief The areas where the glacier bed is wet can be divided according to the nature of the glacial relief-forming action In large areas exaration predominates whereas in places where bottom melting is very active and the ice and underlying surface are separated by a thick layer of water bottom moraines may accumulate along with exaration that is a polygenetic surface is formed Thus geomorphological processes at the bottom of subglacial lakes parallel those on the sea floor under shelf ice

35-2043
Glaciological research at the South Pole, Dome C and in the McMurdo Sound area in 1974-1976. [Ghatsiologicheskie issledovaniia na Iuzhnom poliuse, kupole "C" i v rione zaliva Mak-Merdo v 1974-1976 gg.].
Barkov, N I , *Sovetskaia antarkticheskaia ekspeditsiia Informatsionnyĭ biulleten'*, 1980, No 100 p 107-113, 10 refs , In Russian.
Glacier ice, Glaciology Research projects, Sea ice, Snow cover, Antarctica—McMurdo Sound, Antarctica—South Pole, Antarctica—Dome C.
Soviet Antarctic Expedition research in glaciology is reported on under three headings snow cover studies sea ice observations and work on glaciers of the McMurdo Sound area A great deal of the work was done in cooperation with French and American scientists

35-2044
Glaciological work on the Shackleton Ice Shelf (Jan.-Apr. 1978). (Gliatsiologicheskie issledovaniia na shel'fovom lednike Shekltona (ianvar'-aprel' 1978 g.)).
Savatiugin, L.M., *Sovetskaia antarkticheskaia ekspeditsiia. Informatsionnyi biulleten'*, 1980, No 100, p.114-118, In Russian
Firn, Firn stratification, Meltwater, Ice shelves, Glacier ice, Recrystallization, Ice cores, Antarctica—Shackleton Ice Shelf.
Ice-coring in the central part of the Shackleton Ice Shelf was done to study the structure and characteristics of shelf ice, the hydrological regime and structure of sub-shelf sea water. Results are reported. The firn layer structure and temperature regime in the holes indicate that the shelf belongs to glaciers formed from cold-infiltration recrystallization or cold firn zones. The zone contained much meltwater which, penetrating to the thick snow-firn layer, freezes as bands of infiltrated ice. The gradual metamorphosis into firn in ice takes place by a slow recrystallization at great depth. At this borehole firn ice transformation occurs at 65 m.

35-2045
Drilling experiments with drilling fluids. (Eksperimental'noe burenie skvazhiny, zalitoi nezamerzaiushchei zhidkost'iu).
Zagrivnyi, E.A., et al, *Sovetskaia antarkticheskaia ekspeditsiia. Informatsionnyi biulleten'*, 1980, No 100, p.119-123, 6 refs., In Russian
Zemtsov, A.A., Vostretsov, R.N., Shkurko, A.M.
Ice coring drills, Thermal drills, Pumps, Drilling fluids, Drilling, Electric equipment, Cold weather operation, Antarctica—Vostok Station.
A thermal drill TBZS-152 was tested for ice coring with a non-freezing liquid at Vostok Station. Removing the water from the shaft of the borehole facilitates both normal drilling (at a rate of 0.5-3.5 m/hr) and complete separation of the liquid phases (water from kerosene) in the tank. Heat in the water pipes should be maintained at least 120 Bt/m in the water tank at least 1.5 kBt/m of the water column. The TBZS-152 drill needs a more reliable liquid-removal system, greater power and reliability in the heat rings, and more precise control of basic drilling parameters.

35-2046
Mechanized water preparation at Vostok. (O mekhanizirovannoi zagotovke vody na stantsii Vostok).
Zagrivnyi, E.A., et al, *Sovetskaia antarkticheskaia ekspeditsiia. Informatsionnyi biulleten'*, 1980, No 100, p.124-127, In Russian.
Zemtsov, A.A., Shkurko, A.M.
Water supply, Water pipes, Equipment, Electric equipment, Electric heating, Diesel engines, Antarctica—Vostok Station.
A new diesel-powered generator, baths and living quarters, and a waterheating complex were added to Vostok Station. warm water was also made available for drilling work. The plant is described and schematically shown. Heat for the snow-melting equipment is supplied either by electricity or by hot water from the generator circulation system. Expressions to compute heat necessary to melt snow and to maintain 1oC water temperature by electric heat are given.

35-2047
15th session of the Scientific Committee for Antarctic Research and the 9th meeting of the Coordinating Committee of the International Antarctic Glaciological Project. (Piatnadtsataia sessiia Nauchnogo komiteta po izucheniiu Antarktiki i Deviatoe zasedanie Koordinatsionnogo soveta Mezhdunarodnogo antarkticheskogo gliatsiologicheskogo proekta).
Aver'ianov, V.G., et al, *Sovetskaia antarkticheskaia ekspeditsiia. Informatsionnyi biulleten'*, 1980, No 100, p.128-132, In Russian
Korotkevich, E.S.
Research projects, Antarctica.
The meeting of the 15th session of SCAR in May 1978 in Chamonix, France is reported. It was decided that SCAR meteorological research should be integrated with the global climatic research program of WMO. All the national committees reported on their activities.

35-2048
Vacuum degassing in construction technology of the North. (Vakuumirovanie v tekhnologii stroitel'nogo proizvodstva na Severe).
Polonskii, L.A., Leningrad, Stroiizdat, 1980, 175p., In Russian with English table of contents enclosed. 82 refs
Compaction, Winter concreting, Concrete hardening, Permafrost beneath structures, Prefabrication, Concrete strength, Reinforced concretes, Concrete degassing, Rheology.

35-2049
Dynamics of temperature field of the dam of the Vilyuy hydroelectric power plant. (Dinamika temperaturnogo polia plotiny Viluiskoi GES).
Olovin, B.A., et al, Novosibirsk, Nauka, 1980, 48p., In Russian with English table of contents enclosed. 40 refs
Medvedev, B.A.
Hydraulic structures, Electric power, Dams, Rock fills, Thermal regime, Permafrost beneath structures, Active layer, USSR—Vilyuy River.

35-2050
Polar ice and atmospheric fluctuations.
Wiese, W., *U.S. Army Cold Regions Research and Engineering Laboratory*, Jan 1981, TL 749, 22p, ADB-055 329L, 23 refs. Translated from Geografiska annaler, 1924, Vol.6, p.273-299
Sea ice, Ice conditions, Mass balance, Ice air interface, Atmospheric pressure, Atmospheric circulation, Air temperature.
Various meteorologists have frequently stated the idea that the ice masses of the Arctic and Antarctic oceans have a marked effect on the condition of the atmosphere. The hypothesis that polar ice has an effect on the general condition of the atmosphere gave special interest to the systematic collection of reports on the ice conditions in the Arctic oceans. At the present time the observations collected by the Danish Meteorological Institute on the ice conditions in the northern polar region represent a considerable amount of data. A series of some special, individual studies in this area yielded some rather interesting results, in the author's opinion the most important of which are discussed here.

35-2051
Vertical distribution of plants in the Putorana Mountains. (Vysotnoe raspredelenie rastenii v gorakh Putorany).
Kuvaev, V.B., Leningrad, Nauka, 1980, 261p., In Russian with English table of contents enclosed. Refs. p.246-251.
Permafrost distribution, Alpine landscapes, Glaciation, Taiga, Alpine tundra, Cryogenic soils, Vegetation, Plant ecology, Plant physiology, USSR—Putorana Mountains.

35-2052
Removal of organics by overland flow.
Martel, C.J., et al, MP 1362, Proceedings of the National Seminar on Overland Flow Technology for Municipal Wastewater, Dallas, Texas, Sep 16-18, 1980 (1980), 9p., 11 refs
Bouzoun, J.R., Jenkins, T.F.
Waste treatment, Water treatment, Flooding, Sedimentation, Seepage, Soil temperature, Soil chemistry, Slope orientation, Land reclamation, Organic wastes, Purification.

35-2053
Moisture gain and its thermal consequence for common roof insulations.
Tobiasson, W., et al, MP 1361, Conference on Roofing Technology, 5th April 19-20, 1979, Proceedings, (1980), p.4-16, 19 refs
Ricard, J.
Roofs, Thermal insulation, Moisture transfer, Wettability, Thermal conductivity, Tests.
This paper describes a method for determining the rate of moisture gain and the decay in thermal resistance caused by moisture in common roof insulations. Information on the rate of moisture gain for various insulations is tabulated (Table III) and graphed (Figures 3 and 5). The rate of moisture gain varies significantly with insulation type and wetting test boundary conditions. Graphs are presented to define the decay in thermal resistance of insulation samples at increasing moisture contents (Figures 6-11). Moisture significantly reduces the thermal resistance of most roof insulations.

35-2054
Raised pavement markers at hazardous locations.
Liptak, R.E., *Connecticut. State Department of Transportation. Bureau of Planning and Research Report*, Mar 1979, No 495-1-78-8, 16p., 3 refs. Revised March 1979
Pavements, Markers, Road maintenance, Snow removal, Cost analysis.

35-2055
Annual report No.12, Contract N00014-76-C-0234, NR 307-252.
Washington (State) University, Department of Atmospheric Sciences, Dec. 1, 1980, 26p., 11 refs
Sea ice, Heat balance, Mass balance, Ice melting, Ice growth, Ice optics, Snow optics, Solar radiation, Wave propagation, Research projects.

35-2056
Numerical model for forecasting the ice motion in the Bay and Sea of Bothnia.
Udin, I., et al, *Swedish-Finnish Winter Navigation Research Board. Research report*, 1976, No 18, 40p., In English with Swedish summary. 17 refs
Ullerstig, A.
Sea ice distribution, Drift, Ice mechanics, Ice conditions, Ice forecasting, Mathematical models, Ice cover thickness.

35-2057
Effects of bitumen road constructional faults on the present condition of the surface, and the changes in the bitumen. (Öljysorapäällysteiden työnaikaisten virheiden vaikutukset päällysteen nykyiseen kuntoon sekä öljysorassa tapahtuneet muutokset).
Jaasko, J., *Oulun yliopisto tie- ja maarakennustekniikan laitos. Julkaisu*, 1980, No 31, 103p., In Finnish with English summary.
Road maintenance, Pavements, Bitumens, Bearing strength, Frost action.

35-2058
Use of slag in bituminous pavements. (Masuunikuonan käytöstä bitumilla sidotuissa tiepäällysteissä).
Korvuniemi, M., *Oulun yliopisto tie- ja maarakennustekniikan laitos. Julkaisu*, 1979, No 28, 71p. + figs., In Finnish with English summary. 17 refs
Bituminous concretes, Roads, Concrete aggregates, Bearing strength, Pavements, Tires, Trafficability.

35-2059
Water conditions in California; basic data supplement, July 1980.
Johnson, H.D., et al, *California Cooperative Snow Surveys. Bulletin*, 1980, No 120-80, 29p.
Brown, E.G., Jr., Robie, R.B.
Snow depth, Snow water content, Snow surveys, Statistical analysis, Snow accumulation, Water reserves.

35-2060
Influence of slag cement on the frost resistance of concrete—a theoretical analysis.
Fagerlund, G., *CBI forskning research*, 1980, No 1, 86p., Refs. p.83-86
Cement admixtures, Concrete freezing, Frost resistance, Winter concreting, Theories.

35-2061
Precipitation and snow cover data 1976. (Sade- ja lumihavainnot 1976), Meteorological yearbook of Finland, Vol 76, Pt 2, Helsinki, Finnish Meteorological Institute, 1979, 108p., In Finnish and English
Snow depth, Snow density, Snow water equivalent, Snow accumulation, Precipitation (meteorology), Recording.

35-2062
Last great ice sheets.
Denton, G.H., ed, New York, John Wiley & Sons, 1981, 484p. For individual chapters see 35-2063 through 35-2070, or F-24410 through F-24414. Numerous refs.
Hughes, T.J., ed.
DLC QE697.L293
Glacial geology, Ice sheets, Geologic structures, Paleoclimatology, Ice age theory.
A global view is presented of the last great ice sheets which existed at their fullest extent 17,000 to 21,000 years ago and which subsequently collapsed to remnants in Antarctica and Greenland as the Earth came out of the last ice age. In Chapters 1, 2, 3, and 7 the areal distribution during the last ice age of ice sheets, ice caps and mountain glaciers is reviewed. Chapter 7 deals with the construction and disintegration of the Antarctic ice sheet during the last glaciation. In chapters 4 and 5 numerical methods of reconstructing glacier elevations are developed. In chapter 6 two fundamentally different Northern Hemisphere ice sheet reconstructions are presented which reflect deeply divided opinions among Quaternary geologists concerned with the areal extent of these ice sheets. In one of these reconstructions a minimum and in the other a maximum ice sheet extent are presented. In chapter 8 the question of possible large ice age ice shelves in the Northern Hemisphere is examined by considering the ice sheet dynamics of the maximum ice sheet reconstruction. The discussion of the marine ice sheet of West Antarctica is also related as a speculation to the role of ice streams, ice shelves, and calving bays in the growth and decay of large Northern Hemisphere paleo ice sheets. 29 charts and tables are included in a separate packet with the book. (Auth. mod.)

35-2063
Late Weichselian ice sheets in Eurasia and Greenland.
Andersen, B.G., Last great ice sheets, edited by G.H. Denton and T.J. Hughes, New York, John Wiley & Sons, 1981, p.1-65 + 5 sheets, Refs. p.54-65
DLC QE697.L293
Ice sheets, Glacial geology, Soil dating, Radioactive age determination, Glacial deposits, Moraines, Greenland.

35-2064
Late Wisconsin ice sheets in North America.
Mayewski, P A., et al. Last great ice sheets, edited by G H Denton and T J Hughes, New York, John Wiley & Sons, 1981, p.67-178 + 3 sheets, Refs p 158-170 + Append of radiocarbon dates used in Fig 2-2
Denton, G.H., Hughes, T J
DLC QE697 L293
Ice sheets, Glacial geology, History, Radioactive age determination, Pleistocene.

35-2065
Late Wisconsin-Weichselian mountain glaciers and ice caps.
Hollin, J.T., et al, Last great ice sheets, edited by G H Denton and T J Hughes, New York, John Wiley & Sons, 1981, p 179-206, Refs p 202-206
Schilling, D.H.
DLC QE697 L293
Ice volume, Mountain glaciers, Ice sheets.
On a global basis (except for the arctic and antarctic areas), the areal extent of ice coverage of the type and during the period indicated is given, along with an estimate of the volume of glacier ice Included in these modeling experiments is data for the subantarctic islands

35-2066
Numerical reconstructions of valley glaciers and small ice caps.
Schilling, D.H., et al, Last great ice sheets, edited by G.H. Denton and T.J. Hughes, New York, John Wiley & Sons, 1981, p.207-220, 28 refs
Hollin, J.T
DLC QE697.L293
Glaciers, Computer applications, Ice sheets.
The model enlarges the iterative scheme developed in 1952/1959 by Nye and applies it to the valley glaciers of California and the Patagonian ice cap Part of the computation is applied to the antarctic ice sheet in which most of the ablation is by calving (Auth mod)

35-2067
Numerical reconstruction of paleo-ice sheets.
Hughes, T.J., Last great ice sheets, edited by G.H. Denton and T J Hughes, New York, John Wiley & Sons, 1981, p 221-261, 36 refs
DLC QE697 L293
Ice sheets, Ice mechanics, Ice physics, Glacial hydrology, Subglacial observations, Topographic features, Mathematical models.

35-2068
Last great ice sheets: a global view.
Hughes, T J., et al, Last great ice sheets, edited by G.H. Denton and T.J Hughes, New York, John Wiley & Sons, 1981, p 263-317 + 10 sheets, Refs p 314-217
Denton, G H., Andersen, B G., Schilling, D H., Fastook, J L., Lingle, C S
DLC QE697 L293
Ice sheets, Ice cover thickness, Ice models, Mathematical models, Ice mechanics.
Discussions on the areal extent of late Wisconsin-Weichselian ice sheets are summarized The result pinpoints two fundamentally different conceptions as to how glaciation occurred, which has compelled us to produce both minimum and maximum areal reconstructions of late Wisconsin-Weichselian ice sheets The vertical extent of the minimum and maximum areal reconstructions is presented in maps of ice elevation and ice thickness for specified bed topography, isostatic compensation, and basal shear stress It is emphasized that the limits of late Wisconsin-Weichselian continental glaciation are still unknown, despite more than a century of field studies It is pointed out that documenting the existence and dynamics of possible Northern Hemisphere marine ice sheets is an outstanding glacial geological task Data and charts for the Antarctic Continent are included

35-2069
History of the marine ice sheet in West Antarctica during the last glaciation: a working hypothesis.
Stuiver, M., et al, Last great ice sheets, edited by G.H. Denton and T J Hughes, New York, John Wiley & Sons, 1981, p.319-436 + 5 sheets, Refs. p.431-436
Denton, G.H., Hughes, T J., Fastook, J L
DLC QE697 L293
Ice sheets, Ice shelves, Radioactive age determination, Marine biology, Glacial geology, Pleistocene, Ice models, Antarctica—West Antarctica.
Several aspects of "glaciology's grand unsolved problem" are discussed A model is offered of the behavior of the West Antarctic Ice Sheet as a working hypothesis that can be tested and improved by future field work and modeling experiments The fundamental aspect of this working hypothesis is that, during late Quaternary glacial-interglacial cycles the East Antarctic Ice Sheet remains relatively stable while the West Antarctic Ice Sheet undergoes extensive changes The major contentions of the working hypothesis are summarized During ice maximums the West Antarctic Ice Sheet expands close to the continental shelf margin, nearly filling the Ross and Weddell Seas with grounded ice During interglaciations, the West Antarctic Ice Sheet retreats from the continental shelf by ground line recession Sea level variation is the dominant factor although certainly not the only factor controlling major glacial interglacial expansion and contraction of the marine West Antarctic Ice Sheet, and probably of the narrow marine periphery of the East Antarctic Ice Sheet Whether the West Antarctic Ice Sheet is still receding is unknown There is indirect evidence from sea-level data and from modeling experiments that the West Antarctic Ice Sheet might collapse by fast-mode recession during particularly warm interglaciations (Auth mod)

35-2070
Arctic ice sheet: an outrageous hypothesis.
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Hughes, T J
DLC QE697 L293
Ice sheets, Ice shelves, Ice mechanics, Ice physics.
A hypothesis for the disintegration of the arctic ice sheet is proposed, based on the present day knowledge of the mechanical and physical processes of the various antarctic ice shelves Calving, ice stream, crevasse and ice dome processes are applied in arctic regions having topographic features similar to those of the Antarctic Disintegration of arctic ice sheets by such mechanisms would produce profound environmental transformations

35-2071
Carbon dioxide and climate: ice and ocean.
Thompson, S L., et al, *Nature*, Mar 5, 1981, 290(5801), p 9-10, 9 refs
Schneider, S.H
Ice composition, Carbon dioxide, Climatic changes, Heat transfer, Atmospheric composition, Paleoclimatology, Sea water, Turbulent flow.

35-2072
Island design proposed for "iceberg alley" fields.
Robertson, F P., et al, *Oil and gas journal*, Feb 9, 1981, 79(6), p 85-88, 93.
Loire, R.
Artificial islands, Offshore structures, Icebergs, Oil recovery, Oil storage, Atlantic Ocean.

35-2073
British polar exploration 10 years before and after World War II: a comparison.
Stephenson, A., *Polar record*, Jan 1981, 20(127), p.317-328, 2 refs
Exploration, Expeditions, Polar regions.
The most striking differences between pre- and post-WW II British polar exploration are presented most 1930-40 exploration was done by university exploring clubs and societies expedition members paid their own ways, the leader was responsible for the entire expedition (conception, planning, and execution), expeditions emphasized enjoyment of the risks and challenge of the exploration rather than scientific or technological achievement Most polar exploration in this period looked north to Arctic areas with one major antarctic effort the British Graham Land Expedition of 1934-1937 Following WW II, expeditions were more formally handled Committees organized, controlled, and advised field parties government funding and logistics support became more readily available, equipment and transport were more sophisticated and more international cooperation developed During this time Antarctica and the subantarctic islands reemerged into prominence, the Falkland Islands Dependency Survey (FIDS later to become the British Antarctic Survey) was firmly established and a joint Norwegian British-Swedish expedition to Queen Maud Land was mounted

35-2074
New data base for climate studies.
Matson, M., et al, *Nature*, Feb 5, 1981, 289(5797), p 451-456, 16 refs
Wiesnet, D R.
Snow cover distribution, Spaceborne photography, Spacecraft, Climatology.

35-2075
Post-construction roadbed stabilization in thermokarst areas. [Stabilizatsiia zemlianogo polotna na uchastkakh termokarsta v poslepostroechnyĭ period].
Merenkov, N D., *Transportnoe stroitel'stvo*, Jan 1981, No 1, p 3-4, In Russian
Roads, Embankments, Hydraulic structures, Permafrost beneath structures, Roadbeds, Thermokarst, Settlement (structural), Slope stability.

35-2076
High-strength pipes for overhead electrical contact systems. [Vysokoprochnye truby dlia konstruktsiĭ kontaktnoĭ seti].
Belov, L.F., et al, *Transportnoe stroitel'stvo*, Jan. 1981, No.1, p 6-7, In Russian
Iserson, K G., Levinson, R V
Electric power, Steel structures, Frost resistance, Baykal Amur railroad, Brittleness.

35-2077
Effectiveness and efficiency of hydraulic construction in the central part of the Baykal Amur railroad area. [Povyshenie ekonomichnosti i tempov stroitel'stva vodopropusknykh sooruzheniĭ tsentral'nogo uchastka BAMa].
Solov'ev, G P., et al, *Transportnoe stroitel'stvo*, Jan 1981, No 1, p 9-11, In Russian
Hydraulic structures, Drainage, Embankments, Permafrost beneath structures, Culverts, Baykal Amur railroad, Settlement (structural), Earthwork, Permafrost control.

35-2078
Allowing for organization-technologic factors when building settlements for transport construction workers. [Uchet organizatsionno-tekhnologicheskikh faktorov pri vozvedenii poselkov transportnykh stroiteleĭ].
Sobchenko, M S., et al, *Transportnoe stroitel'stvo*, Jan 1981, No.1, p 16-17, In Russian
Khabibulin, K L
Houses, Modular construction, Permafrost beneath structures, Baykal Amur railroad, Cost analysis.

35-2079
Porous fiberglass insulation used in modular construction. [Steklopor kak utepliteľ dlia inventarnykh konteinernykh zdaniĭ].
Mordukhovich, I M., et al, *Transportnoe stroitel'stvo*, Jan. 1981, No 1, p 17-19, In Russian
Fedorov, V A., Skavronskaia, A.B.
Buildings, Prefabrication, Thermal insulation, Panels, Modular construction, Permafrost beneath structures.

35-2080
Production of precast lightweight concrete elements for transportation construction. [Razvitie proizvodstva sbornykh legkobetonnykh konstrukstiĭ dlia transportnogo stroitel'stvaj.
Vasil'ev, N.F., et al, *Transportnoe stroitel'stvo*, Jan 1981, No 1, p 20-23, In Russian
Palagin, E V., Prokhorov, V G
Concrete structures, Prefabrication, Reinforced concretes, Lightweight concretes, Large panel buildings, Residential buildings, Permafrost beneath structures, Baykal Amur railroad.

35-2081
Percussion-vibratory assembly for moulding concrete blocks of bridge piers. [Opyt formovaniia betonnykh blokov mostovykh opor na udarno-vibratsionnoĭ ustanovke].
Rasskazov, I.D., et al, *Transportnoe stroitel'stvo*, Jan. 1981, No 1, p 23-24, In Russian
Concrete structures, Prefabrication, Construction equipment, Bridges, Piers, Linings, Masonry, Thermal stresses, Frost resistance.

35-2082
Preventing naled formation on streams constantly supplying water for ice growth. [Protivonaledne meropriiatiia na postoiannykh vodotokakh].
Merkulov, D M., *Transportnoe stroitel'stvo*, Jan 1981, No 1, p 38-39, In Russian
Streams, Hydraulic structures, River crossings, Bridges, Culverts, Naleds, Ice growth, Countermeasures.

35-2083
Determining the coefficient of nonstationary heat transfer. [Opredelenie koeffitsienta nestatsionarnogo teploobmena].
Shkurko, B.F., et al, *Transportnoe stroitel'stvo*, Jan 1981, No.1, p 46-47, In Russian 1 ref
Nechaev, V P
Underground facilities, Tunnels, Underground storage, Walls, Thermal conductivity, Ground temperature, Heat transfer, Design.

35-2084
Horizontal freezing in tunnel construction in East Germany. [Gorizontal'noe zamorazhivanie na stroitel'stve tonneleĭ v FRG].
Gubenkov, L K., et al, *Transportnoe stroitel'stvo*, Jan 1981, No 1, p 52-54, In Russian
Burnshtein, A V
Earthwork, Tunnels, Artificial freezing, Equipment.

35-2085
Servicing heavy road construction machines. [Tekhnicheskoe obsluzhivanie parkov tiazhelykh dorozhno-stroitel'nykh mashin].
Talts, V G., *Transportnoe stroitel'stvo*, Feb 1981, No 2, p 26-28, In Russian
Roads, Construction equipment, Maintenance.

35-2086
Fortieth anniversary of the All-Union Trust of Industrial Blasting Operations. [Vsesoiuznomu trestu Transvzryvprom - 40 let].
Gruzdev, V.V., *Transportnoe stroitel'stvo*, Feb 1981, No.2, p.33-35, In Russian
Earthwork, Construction equipment, Blasting, Drilling, Roads, Permafrost.

35-2087
Evaluating disadvantages of road design and construction in naled areas. [Prognozirovanie ushcherba pri proektirovanii i stroitel'stve dorog v usloviiakh formirovaniia naledei].
Nevskii, S.D., *Transportnoe stroitel'stvo*, Feb. 1981, No.2, p.41-42, In Russian.
Embankments, Naleds, Roads, Design, Railroads.

35-2088
Legends for detailed engineering-geological maps of permafrost areas. [Uslovnye oboznacheniia dlia detal'nykh inzhenerno-geologicheskikh kart raionov razvitiia mnogoletnemerzlykh gruntov].
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Maps, Engineering geology, Aerial photography, Photointerpretation, Roads, Permafrost distribution, Permafrost structure.

35-2089
Methods of calculating combined filtering structures. [O metodike rascheta kombinirovannykh fil'truiushchikh sooruzhenii],
Rabukhin, L.G., *Transportnoe stroitel'stvo*, Feb 1981, No.2, p.47-48, In Russian. 3 refs.
Hydraulic structures, Dams, Embankments, Bridges, Culverts, Naleds, Permafrost beneath structures, Design.

35-2090
Evaporation thermosiphons for heating stairs in pedestrian tunnels. [Obogrev skhodov peshekhodnykh tonnelei isparitel'nymi termosifonami],
Tetel'baum, A.N., et al, *Transportnoe stroitel'stvo*, Feb 1981, No.2, p.48-49, In Russian. 4 refs.
Ershov, E.M., Vlasov, T.A.
Tunnels, Icing, Ice prevention, Heating, Design.

35-2091
Construction under severe climatic conditions. [Stroitel'stvo v surovykh usloviiakh],
Shpiller, E.D., et al, *Transportnoe stroitel'stvo*, Feb 1981, No.2, p.54-55, In Russian
Maksudov, R.G.
Electric heating, Electric power, Construction materials, Thermal insulation, Prefabrication, Construction equipment, Earthwork, Excavation, Motor vehicles, Cranes (hoists).

35-2092
From display to production. [S vystavki—v proizvodstvo], *Transportnoe stroitel'stvo*, Feb. 1981, No.2, p.65, In Russian.
Construction equipment, Earthwork, Excavation, Frozen ground.

35-2093
Construction equipment for northern pipelines. [Stroitel'naia tekhnika dlia severnykh trass],
Osipov, V.N., *Stroitel'stvo truboprovodov*, Jan 1981, No.1, p.15-16, In Russian.
Roads, Pipe laying, Swamps, Earthwork, Excavation, Permafrost, Petroleum industry, Cold weather construction, Construction equipment.

35-2094
Increasing the effectiveness of pipeline laying and insulation work in the North. [Povyshenie proizvoditel'nosti izoliatsionno-ukladochnykh rabot v usloviiakh Severa],
Kantsidalov, E.P., *Stroitel'stvo truboprovodov*, Jan 1981, No.1, p.29-30, In Russian
Thermal insulation, Pipe laying, Permafrost beneath structures, Swamps.

35-2095
Suggestions of innovators from the Main Administration for the Construction of Pipelines in Siberian Regions. [Predlagaiut ratsionalizatory Glavsibtruboprovodstroia], *Stroitel'stvo truboprovodov*, Jan 1981, No.1, p.33-34, In Russian
Swamps, Earthwork, Excavation, Trenching, Frost penetration, Snow cover effect, Ice crossings, Pipe laying, Equipment.

35-2096
Scraper with adjustable cutting angle. [Rykhlitel' s reguliruemym uglom rykhleniia],
Vetrov, IU.A., et al, *Mekhanizatsiia stroitel'stva*, Jan 1981, No.1, p.20-21, In Russian.
Kuslenko, A.A., Bazhan, V.I., Shakhov, V.S.
Earthwork, Excavation, Frozen ground.

35-2097
Thermal state of hydraulic systems of excavators at low temperatures. [Teplovoe sostoianie gidrosistemy ekskavatora pri nizkikh temperaturakh],
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Earthwork, Diesel engines, Excavation, Cold weather performance.

35-2098
Selection of the type of ground for roadbed construction. [Vybor printsipa ispol'zovaniia gruntov v zemlianom polotne avtomobil'nykh dorog],
Mikhailov, G.D., *Neftepromyslovoe stroitel'stvo*, 1981, No.1, p.12-15, In Russian
Roads, Embankments, Roadbeds, Permafrost beneath structures, Frost penetration, Frost heave, Seasonal freeze thaw, Design.

35-2099
Passing water and ice cover stone slopes. [O propuske raskhodov vody i l'da poverkh otkosov iz kamnia],
Pravdivets, IU.P., *Energeticheskoe stroitel'stvo*, Jan. 1981, No.1, p.43-46, In Russian.
Hydraulic structures, Spillways, Earth dams, Linings, Masonry, Floods, Ice jams, Ice passing.

35-2100
Winter concreting of road pavements. [Betonirovanie pokrytii dorog v zimnikh usloviiakh],
Modylevskii, A.B., et al, *Energeticheskoe stroitel'stvo*, Jan 1981, No.1, p.48-49, In Russian. 2 refs.
Roads, Pavements, Winter concreting, Concrete admixtures, Concrete hardening, Frost resistance.

35-2101
Evaluating service life of steel structures at low temperature with cyclic overloading. [Kolichestvennaia otsenka dolgovechnosti stal'nykh konstruktsii, ekspluatiruiushchikhsia v usloviiakh tsiklicheskikh peregruzok i nizkikh temperatur],
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Steel structures, Cold weather performance, Brittleness, Freeze thaw cycles, Stresses, Mathematical models.

35-2102
Thermal insulation properties of external enclosures of residential large panel buildings, series 135, designed for the Baykal Amur railroad area. [Teplozashchitnye svoistva naruzhnykh ograzhdatelshchikh konstruktsii krupnopanel'nykh zhilykh zdanii serii 135 dlia BAMa],
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Petrova, G.B.
Residential buildings, Large panel buildings, Thermal insulation, Walls, Panels, Reinforced concretes, Permafrost beneath structures, Joints (junctions), Baykal Amur railroad, Design.

35-2103
Calculating heat protection measures for earth dam construction by the wash-up technique, under severe climatic conditions. [Raschet teplozashchitnykh meropriiatii pri vozvedenii zemlianykh gidrotekhnicheskikh sooruzhenii sposobom gidromekhanizatsii v surovykh klimaticheskikh usloviiakh],
Popov, IU.A., et al, *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura*, 1980, No.11, p.103-108, In Russian. 7 refs.
Mel'nik, V.IA., Dziubenko, L.F.
Earth dams, Hydraulic fill, Earthwork, Frost penetration, Stefan problem, Ground ice, Ground thawing, Mathematical models.

35-2104
Calculating temperature regime of concrete hydraulic structures during operation periods. [K raschetu temperaturnogo rezhima betonnykh gidrosooruzhenii v ekspluatatsionnyi period],
Sobol', S.V., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura*, 1980, No.11, p.109-111, In Russian. 6 refs.
Concrete structures, Hydraulic structures, Thermal regime, Seasonal freeze thaw, Concretes, Thermal conductivity.

35-2105
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Slope processes, Periglacial processes, Rock mechanics, Lithology, Discontinuous permafrost, Freeze thaw cycles, Paleoclimatology, Geomorphology, Talus, Erosion.

35-2106
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Oil spills, Sea ice, Ice conditions, Microwaves, Water pollution, Remote sensing.

35-2107
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Utilities, Pipeline freezing, Protection, Permafrost thermal properties, Cold weather construction, Underground pipelines, Municipal engineering, Pipeline insulation, Cold weather operation, Thermal insulation, Water supply, Sewage disposal.

35-2108
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Christensen, V., *Canada Environmental Protection Service. Economic and technical review. Report*, Oct.1980, EPS 3-WP-80-5, Symposium on Utilities Delivery in Northern Regions, 2nd, 1979. Proceedings, p.9-18
Utilities, Sanitary engineering, Cold weather operation, Water supply, Research projects.

35-2109
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Rosendahl, G.P., *Canada Environmental Protection Service. Economic and technical review. Report*, Oct 1980, EPS 3-WP-80-5, Symposium on Utilities Delivery in Northern Regions, 2nd, 1979. Proceedings, p.19-43
Utilities, Cold weather construction, Pipeline insulation, Thermal insulation, Water supply, Sewage disposal, Fires, Protection, Design.

35-2110
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Cameron, J.J., et al, *Canada Environmental Protection Service. Economic and technical review. Report*, Oct 1980, EPS 3-WP-80-5, Symposium on Utilities Delivery in Northern Regions, 2nd, 1979. Proceedings, p.47-88, Refs. p.85-88
Armstrong, J.C.
Utilities, Water supply, Sanitary engineering, Waste disposal, Cold weather operation, Cost analysis, Water conservation.

35-2111
Wind generated electric power for sanitation services—a case study.
Crawford, M.A., et al, *Canada Environmental Protection Service. Economic and technical review. Report*, Oct.1980, EPS 3-WP-80-5, Symposium on Utilities Delivery in Northern Regions, 2nd, 1979. Proceedings, p.89-104
Bergin, T.J.
Wind power generation, Utilities, Sanitary engineering, Cold weather operation.

35-2112
Waste heat utilization through soil heating.
McFadden, T., et al, *Canada Environmental Protection Service. Economic and technical review. Report*, Oct.1980, EPS 3-WP-80-5, MP 1363, Symposium on Utilities Delivery in Northern Regions, 2nd, 1979. Proceedings, p.105-120, 13 refs.
Buska, J.
Waste disposal, Heat sources, Heat recovery, Soil temperature, Heating, Cooling systems, Agriculture.

35-2113
Appropriate technologies for water supplies and sanitation in northern communities.
McGarry, M.G., et al. *Canada. Environmental Protection Service. Economic and technical review Report,* Oct 1980. EPS 3-WP-80-5, Symposium on Utilities Delivery in Northern Regions, 2nd, 1979 Proceedings, p.121-135
Jackson, T., Rybczynski, W., Whyte, A.V., Zimmerman, A.P.
Utilities, Water supply, Cold weather operation, Sanitary engineering, Cost analysis.

35-2114
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Fielding, M.B., *Canada Environmental Protection Service Economic and technical review Report,* Oct.1980. EPS 3-WP-80-5, Symposium on Utilities Delivery in Northern Regions, 2nd, 1979 Proceedings, p 136-139, 5 refs.
Utilities, Pipeline freezing, Soil temperature, Frozen ground thermodynamics, Underground pipelines, Cold weather construction.

35-2115
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Cooper, B.J., *Canada Environmental Protection Service. Economic and technical review Report,* Oct 1980. EPS 3-WP-80-5, Symposium on Utilities Delivery in Northern Regions, 2nd, 1979. Proceedings, p 140-149, 3 refs
Utilities, Sewage disposal, Cold weather operation, Environmental impact, Pollution, Cost analysis.

35-2116
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James, F.W., *Canada Environmental Protection Service Economic and technical review Report,* Oct.1980. EPS 3-WP-80-5, Symposium on Utilities Delivery in Northern Regions, 2nd, 1979. Proceedings, p.150-186
Utilities, Pipeline freezing, Underground pipelines, Cold weather construction, Thermal insulation, Permafrost, Pipeline insulation.

35-2117
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Whyman, A.D., *Canada Environmental Protection Service Economic and technical review Report,* Oct 1980. EPS 3-WP-80-5, Symposium on Utilities Delivery in Northern Regions, 2nd, 1979 Proceedings, p.187-220, 5 refs
Utilities, Cold weather construction, Pipeline freezing, Thermal insulation, Polymers, Frost penetration.

35-2118
Fire protection in the North.
Adrian, L., *Canada. Environmental Protection Service Economic and technical review Report,* Oct.1980. EPS 3-WP-80-5, Symposium on Utilities Delivery in Northern Regions, 2nd, 1979. Proceedings, p.225-229
Fires, Countermeasures, Cold weather operation, Protection.

35-2119
Fire protection considerations in remote, cold regions communities.
Ryan, W.L., *Canada. Environmental Protection Service Economic and technical review. Report,* Oct 1980, EPS 3-WP-80-5, Symposium on Utilities Delivery in Northern Regions, 2nd, 1979. Proceedings, p.230-233
Fires, Protection, Countermeasures, Cold weather operation, Utilities, Water supply.

35-2120
Fire protection in isolated northern communities.
Whatmough, R.G., *Canada Environmental Protection Service. Economic and technical review. Report,* Oct 1980, EPS 3-WP-80-5, Symposium on Utilities Delivery in Northern Regions, 2nd, 1979 Proceedings, p.234-236.
Fires, Protection, Countermeasures, Water supply, Cold weather operation.

35-2121
Sanitation facilities operation and maintenance in Alaskan native villages.
Rogness, D.R., *Canada Environmental Protection Service. Economic and technical review Report,* Oct.1980. EPS 3-WP-80-5, Symposium on Utilities Delivery in Northern Regions, 2nd, 1979 Proceedings, p 239-247
Utilities, Winter maintenance, Cold weather operation, Sanitary engineering.

35-2122
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Sargent, J.W., *Canada Environmental Protection Service Economic and technical review Report,* Oct 1980. EPS 3-WP-80-5 Symposium on Utilities Delivery in Northern Regions, 2nd, 1979. Proceedings, p 248-259, 2 refs
Utilities, Cold weather operation, Sanitary engineering, Maintenance, Legislation.

35-2123
Application of skin effect current tracing for freeze protection of water systems.
Tracey, R.W., *Canada Environmental Protection Service Economic and technical review Report,* Oct 1980. EPS 3-WP-80-5, Symposium on Utilities Delivery in Northern Regions, 2nd, 1979 Proceedings, p 263-287.
Utilities, Water pipelines, Pipeline freezing, Pipeline heating, Protection, Electric heating, Heat transfer, Thermal insulation.

35-2124
Electric heat tracing and energy conservation for northern installations.
Johnson, B.C., et al. *Canada Environmental Protection Service Economic and technical review Report,* Oct 1980. EPS 3-WP-80-5, Symposium on Utilities Delivery in Northern Regions, 2nd, 1979 Proceedings, p 288-309, 6 refs
Pitzer, R.K., Tarbutton, G
Utilities, Thermal insulation, Pipeline freezing, Pipeline heating, Electric heating, Heat loss, Sanitary engineering.

35-2125
Thawing of frozen water services.
Currey, R., *Canada Environmental Protection Service Economic and technical review Report,* Oct 1980. EPS 3-WP-80-5, Symposium on Utilities Delivery in Northern Regions, 2nd, 1979 Proceedings, p 310-313.
Utilities, Water pipelines, Thawing, Winter maintenance.

35-2126
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Kent, D., et al. *Canada Environmental Protection Service Economic and technical review Report,* Oct 1980. EPS 3-WP-80-5, Symposium on Utilities Delivery in Northern Regions, 2nd, 1979 Proceedings, p 317-331, 13 refs
Hwang, C.T.
Utilities, Permafrost thermal properties, Soil temperature, Freeze thaw cycles, Heat transfer, Computer applications, Boundary layer, Meteorological data, Models, Municipal engineering.

35-2127
Thermodynamic analysis of the water distribution system in Inuvik, N.W.T.
Hull, J.A., *Canada Environmental Protection Service. Economic and technical review Report,* Oct 1980. EPS 3-WP-80-5, Symposium on Utilities Delivery in Northern Regions, 2nd, 1979. Proceedings, p 332-346
Water pipelines, Pipeline heating, Winter maintenance, Heat transfer, Pipeline freezing, Countermeasures, Protection, Computer applications.

35-2128
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James, W., et al. *Canada Environmental Protection Service. Economic and technical review Report,* Oct.1980. EPS 3-WP-80-5, Symposium on Utilities Delivery in Northern Regions, 2nd, 1979 Proceedings, p 347-366, 4 refs
Robinson, M.A
Utilities, Water pipelines, Permafrost, Pipeline freezing, Protection, Pipeline insulation, Cold weather construction, Thermal insulation, Design, Cost analysis.

35-2129
Water supply system for the world's most northerly permanent community.
Chong, T.M.Y., et al. *Canada. Environmental Protection Service Economic and technical review Report,* Oct 1980. EPS 3-WP-80-5, Symposium on Utilities Delivery in Northern Regions, 2nd, 1979 Proceedings, p 367-393
Mattes, K.T.
Water supply, Utilities, Cold weather operation, Pipeline insulation, Pipeline heating, Pipeline freezing, Water treatment.

35-2130
Solving snow-drifting problems at Baker Lake, N.W.T., using snow-modeling techniques
Adam, K.M., et al. *Canada Environmental Protection Service Economic and technical review Report,* Oct 1980. EPS 3-WP-80-5, Symposium on Utilities Delivery in Northern Regions, 2nd, 1979 Proceedings, p 394-408, 1 ref
Piotrowski, R
Urban planning, Municipal engineering, Site accessibility, Snowdrifts, Utilities, Models, Cost analysis.

35-2131
Waterworks systems, Yellowknife, Northwest Territories.
Prentice, J.R., et al. *Canada Environmental Protection Service Economic and technical review Report,* Oct 1980. EPS 3-WP-80-5, Symposium on Utilities Delivery in Northern Regions, 2nd, 1979 Proceedings, p 409-425
Stroud, G.A
Water pipelines, Pipeline freezing, Protection, Countermeasures, Municipal engineering, Cold weather construction, Frost heave, Discontinuous permafrost.

35-2132
Large scale development of remote housing in subarctic areas.
Robertson, W.A., et al. *Canada Environmental Protection Service Economic and technical review Report,* Oct 1980. EPS 3-WP-80-5, Symposium on Utilities Delivery in Northern Regions, 2nd, 1979 Proceedings, p 426-438, 6 refs
Schreader, R.L
Urban planning, Municipal engineering, Permafrost beneath structures, Cold weather construction, Soil strength, Bearing strength, Utilities.

35-2133
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Livingston, T.W., et al. *Canada Environmental Protection Service Economic and technical review Report,* Oct 1980. EPS 3-WP-80-5, Symposium on Utilities Delivery in Northern Regions, 2nd, 1979 Proceedings, p 439-474
Kjerstad, N
Cold weather construction, Buildings, Permafrost beneath structures, Utilities, Pipeline freezing, Protection, Design.

35-2134
Modified low-pressure communal sewage disposal systems.
McAmmond, K.W., *Canada Environmental Protection Service Economic and technical review Report,* Oct 1980. EPS 3-WP-80-5, Symposium on Utilities Delivery in Northern Regions, 2nd, 1979 Proceedings, p 477-483
Sewage disposal, Utilities, Cold weather operation, Sanitary engineering.

35-2135
Water and sewer utilities for Barrow, Alaska.
Leman, L.D., *Canada Environmental Protection Service Economic and technical review Report,* Oct 1980. EPS 3-WP-80-5, Symposium on Utilities Delivery in Northern Regions, 2nd, 1979 Proceedings, p 484-506, 11 refs
Municipal engineering, Permafrost thermal properties, Cold weather construction, Pipeline freezing, Protection, Seasonal freeze thaw, Utilities, Soil temperature, Design, Cost analysis.

35-2136
New approaches to water and sewer services in permafrost area—Norman Wells, N.W.T.
Irwin, W.W., *Canada Environmental Protection Service Economic and technical review Report,* Oct 1980. EPS 3-WP-80-5, Symposium on Utilities Delivery in Northern Regions, 2nd, 1979 Proceedings, p 507-542
Utilities, Municipal engineering, Permafrost, Pipeline freezing, Protection, Thermal insulation, Pipeline insulation, Design.

35-2137
Winterize equipment to conserve fuel, improve operation. *World construction,* Sep 1980, 33(9), p 53
Winter maintenance, Equipment.

35-2138
Construction equipment for snow removal. *World construction,* Sep 1980, 33(9), p 54
Snow removal, Construction equipment.

35-2139
Drilling north of the Arctic Circle. *World construction,* Sep 1980, 33(9), p 56-57
Drilling, Cold weather construction, Roads, Equipment, Earthwork.

35-2140
Wastage features of the inland ice sheet in central South Norway.
Garnes, K., et al. *Boreas*, Dec 1980, 9(4), p 251-269, 46 refs
Bergersen, O.F
Moraines, Periglacial processes, Meltwater, Paleoclimatology, Topographic effects, Norway.

35-2141
Problems of moraine morphology: Rogen moraine and Blattnick moraine.
Markgren, M., et al. *Boreas*, Dec 1980, 9(4), p.271-274, 16 refs
Lasstla, M
Moraines, Geomorphology, Periglacial processes, Topographic effects, Paleoclimatology.

35-2142
Distribution of local bedrock material in some moraine forms from the inner part of northern Sweden.
Minell, H., *Boreas*, Dec 1980, 9(4), p 275-281, 10 refs.
Moraines, Geomorphology, Periglacial processes, Topographic effects, Paleoclimatology, Models, Sweden.

35-2143
Ice lobes of the Scandinavian ice sheet during the deglaciation in Finland.
Punkari, M., *Boreas*, Dec 1980, 9(4), p 307-310, 20 refs.
Ice sheets, Ice melting, Periglacial processes, Glacier flow, Paleoclimatology, Finland.

35-2144
Deglaciation and glacial lake development in the Kaamasjoki River basin, Finnish Lapland.
Seppälä, M., *Boreas*, Dec 1980, 9(4), p 311-319, 15 refs
Glacial lakes, Periglacial processes, Landforms, Origin, Paleoclimatology, Finland—Lapland.

35-2145
Prediction of growth parameters of frost deposits in forced convection.
White, J E., et al. *Journal of heat transfer*, Feb 1981, 103(1), p.3-6, 16 refs.
Cremers, C.J.
Hoarfrost, Heat transfer, Mass transfer, Convection, Ice growth, Frost forecasting, Ice density, Ice cover thickness, Analysis (mathematics).

35-2146
Transition from natural-convection-controlled freezing to conduction-controlled freezing.
Sparrow, E.M., et al, *Journal of heat transfer*, Feb 1981, 103(1), p.7-12, 9 refs
Ramsey, J.W., Harris, J S
Freezing rate, Liquid solid interfaces, Thermal conductivity, Mass transfer, Convection, Conduction, Temperature, Surface roughness, Time factor, Phase transformations, Experimentation.

35-2147
Melting of a vertical ice wall by free convection into fresh water.
Wilson, N W., et al, *Journal of heat transfer*, Feb 1981, 103(1), p 13-17, 18 refs
Lee, J J
Ice melting, Velocity, Convection, Heat transfer, Laminar flow, Boundary layer, Temperature effects.

35-2148
Marine sediment core descriptions IWSOE 68, 69, 70; Deep Freeze 79.
Anderson, J.B., et al, Houston, Texas, Rice University, 1981, 60p, 6 refs.
Da' s, S B., Domack, E W., Kurtz, D D., Balshaw K.M., Wright, R.
Bottom sediment, Marine deposits, Drill core analysis, Ice cover effect, Antarctica—Weddell Sea, Antarctica—Adélie Coast.
The polar seas represent one of the most complex and also the most poorly understood marine sedimentary environments Antarctica provides the only modern glacial marine environment where large ice shelves exist and where the ice sheet is still grounded on the seafloor These large glacial features undoubtedly play a key role in glacial marine sedimentation Prior to 1968 only a few widely scattered sediment samples had been obtained from the Antarctic continental shelf and slope From 1968 through 1970 56 sediment cores were collected during the International Weddell Sea Oceanographic Expedition To date, descriptions of most of this valuable collection have not been distributed to the scientific community The present manual includes descriptions of these materials along with descriptions of sediment grab samples and piston cores obtained during the Deep Freeze 79 expedition to the d'Urville Sea (Auth mod)

35-2149
Unbalanced snow distributions for the design of arch-shaped roofs in Canada.
Taylor, D.A., et al, *Canadian journal of civil engineering*, Dec 1980, 7(4), p 651-656, In English with French summary 4 refs
Schriever, W R
Snow loads, Roofs, Building codes.

35-2150
Geobotanical atlas of the Prudhoe Bay region, Alaska.
Walker, D.A., et al, *U S Army Cold Regions Research and Engineering Laboratory*, June 1980, CR 80-14, 69p., Refs. p 45-47
Everett, K R., Webber, P.J., Brown, J.
Tundra, Geomorphology, Permafrost, Soils, Vegetation, Landforms, Ecosystems, Maps, Plants (botany), Environments, Photography, Economic development, United States—Alaska—Prudhoe Bay.
This atlas illustrates the interrelationships among the landforms, soils and vegetation of a portion of the Arctic Coastal Plain of Alaska The Prudhoe Bay region is dominated by an alkaline peaty coastal tundra, a type that has not been intensively studied Forty-two vegetation communities thirteen major landforms, and eight soil types are described Several of the plant communities and one soil, the Pergelic Cryoboroll, have not been described previously The vegetation is discussed with respect to three important gradients temperature, soil pH and soil moisture Other aspects of the Prudhoe Bay environment, including geology, permafrost, and winter and summer climate are discussed and illustrated Also included are historical descriptions of the development of the oilfield and of selected scientific investigations in the Alaskan Arctic Master maps present the landforms soils and vegetation of a 145-sq km portion of the oilfield road network at a scale of 1:12,000 Derived geobotanical special purpose maps, useful for land-use planning and management of the ecosystem are explained and several examples are shown for a 36 sq km portion of the oilfield

35-2151
Spring runoff forecasts from snow assessments in the Malmagen area at 62N in Sweden. (Voarflodesprognoser med utgangspunkt froan snötaxeringar i Malmagenomroadet),
Zarkrisson, K., *Stockholm Universitet Naturgeografiska Institutionen Forskningsrapport*, 1980, No 40, 119p + append., In Swedish with English summary Refs. p.112-119
Runoff forecasting, Snow hydrology, Snowmelt, Snow water equivalent, Snow accumulation, Snow cover distribution, Remote sensing, Mountains.

35-2152
Attack under winter conditions.
Georgiev, E., *U S Army Foreign Science and Technology Center Technical translation*, Oct 21, 1980, FSTC-HT-593-80, 6p, Translated from Serznant, 1979, No 12, p.9-11.
Military operation, Cold weather operation, Snow depth, Icing, Temperature effects.

35-2153
Wire regelation at low temperatures.
Gilpin, R R., *Journal of colloid and interface science*, Oct. 1980, 77(2), p 435-448, 18 refs.
Power line icing, Regelation, Ice solid interface, Dynamic properties, Low temperature tests, Temperature effects, Analysis (mathematics).

35-2154
Identification of lower extremity dynamics during snow skiing.
Lee, C W., et al, *Journal of dynamic systems, measurement, and control*, June 1980, Vol 102, p 123-130, 13 refs.
Mote, C D., Jr
Skis, Human factors, Dynamic properties.

35-2155
On the statistical investigation of fall velocity of snowflakes.
Sasyo, Y., et al, *Papers in meteorology and geophysics*, Sep 1980, 31(2), p 61-79, 10 refs In English with Japanese summary
Matsuo, T.
Snowflakes, Falling bodies, Velocity, Statistical analysis.

35-2156
Estimation technique for snow surface albedo.
Petzold, D.E., *McGill University, Montreal Department of Geography Climatological bulletin*, 1977, Vol 21, p 1-11, 13 refs
Snow surface, Albedo, Cloud cover, Snow deterioration, Computer applications.

35-2157
Ice research program of the Great Lakes Environmental Research Laboratory.
Quinn, F H., *Glaciological data*, Dec 1980, GD-9, p 1-4, Refs. p.2-4
Lake ice, Ice forecasting, Ice surveys, Research projects, Ice conditions, Distribution, Great Lakes.

35-2158
Great Lakes ice data archive.
Hoffman, C S., *Glaciological data*, Dec 1980, GD-9, p.5-20, 8 refs
Lake ice, Glaciology, Ice cover thickness, Stratigraphy, Oceanography, Climatology, Statistical analysis

35-2159
Summary of satellite observations of Great Lakes ice: 1974-1980.
Clark, J W *Glaciological data*, Dec 1980, GD-9, p 21-33, 7 refs.
Lake ice, Ice conditions, Remote sensing, Meteorological data, LANDSAT.

35-2160
Ice formation and ice control programs of the Saint Lawrence Seaway Development Corporation.
Hung, S C., *Glaciological data*, Dec 1980, GD-9, p.35-37, 12 refs.
Lake ice, Ice conditions, Ice control, Remote sensing, Meteorological data, Aerial surveys, Research projects.

35-2161
Great Lakes ice: a selected bibliography.
Hoffman, C S., ed. *Glaciological data*, Dec 1980, GD-9, p 39-71
Lake ice, Ice surveys, Bibliographies.

35-2162
Snow and avalanche research in France.
Brugnot, G., *Glaciological data*, Dec 1980, GD-9, p 73, 2 refs
Snow surveys, Avalanches, Research projects, France.

35-2163
Snow survey of the Northern Hemisphere.
Taylor, R A H., *Glaciological data*, Dec 1980, GD-9, p 75-76, 3 refs
Mapping, Snow surveys, Snow line, Snow cover.

35-2164
Strength and freeze-thaw characteristics of concrete incorporating granulated blast furnace slag.
Malhotra, V M., *Canada, Centre for Mineral and Energy Technology CANMET report*, July 1979, No 79-38, 260., In English with French summary 21 refs
Concrete strength, Concrete freezing, Thawing, Freeze thaw tests, Concrete admixtures, Flexural strength, Concrete durability, Slag cements.

35-2165
Mineral insulation—a critical study.
Winer, A A., et al, *Canada Centre for Mineral and Energy Technology CANMET report*, Feb 1980, No 80-11E, 25p, In English with French summary 14 refs
Wang, S B
Thermal insulation, Manufacturing, Chemical composition, Buildings.

35-2166
Corrosion of welds in ice-breaking ships—a review.
Gilmour, J B., *Canada Centre for Mineral and Energy Technology CANMET report*, Apr 1980, No 80-14E 10p, In English with French summary 18 refs
Icebreakers, Corrosion, Countermeasures.

35-2167
Sea ice processes and models.
Pritchard, R S., ed, Seattle, University of Washington Press, 1980, 474p, Refs passim For preprints of this symposium see 33-1368 through 33-1410, for papers not issued as preprints see 35-2168 through 35-2170
DLC GB2401.2 S42
Sea ice, Drift, Dynamic properties, Remote sensing, Meteorology, Oceanography, Meetings, Research projects, Mathematical models.

35-2168
Nonsteady ice drift in the Strait of Belle Isle.
Sodhi, D S., et al, CRREL MP 1364, Sea ice processes and models Edited by R S Pritchard, Seattle, University of Washington Press, 1980, p 177-186, 9 refs
Hibler, W D., III
Sea ice, Drift, Ice water interface, Boundary layer, Mathematical models, Viscous flow.
The finite element formulation of a linear viscous sea ice model has been presented The temporal ice acceleration term is in

cluded in the momentum equations in order to compute nonsteady ice drift rates. This model is applied to the Strait of Belle Isle, where strong tidal streams move the pack ice back and forth. Using idealized sinusoidal variations of the tidal streams, it is found that the time lag between the water and the ice velocities is dependent upon the viscosity parameters. These results indicate that the ice is not drifting freely and the boundary layer near the shore affects the ice movement in the Strait. The viscosity parameters used in this study are small in order to simulate a reasonable time lag between the ice and water velocities. The high shearing near the shores necessitates low viscosities for proper simulation of the flow of pack ice in the Strait.

35-2169
Continuum sea ice model for a global climate model.
Ling, C.H., et al. Sea ice processes and models. Edited by R.S. Pritchard. Seattle, University of Washington Press, 1980. p.187-196. 20 refs.
Rasmussen, L.A., Campbell, W.J.
Sea ice, Drift, Ice conditions, Mathematical models, Remote sensing, Ice melting, Freezing, Microwaves, Climate, Mapping, Radiometry, Weddell Sea.
The model developed by Campbell (1965) has been extended to a time-dependent, quasi-steady-state model that uses both the equation of continuity and the equation of momentum. It also incorporates an equation of state that relates the pressure of ice to its convergence. The constitutive equation is of a fluid type. The freezing and melting of sea ice is parameterized in terms of ice thickness, location, and season. For the 1974 austral winter twice-daily surface wind stress fields were generated from synoptic pressure data. For every third day of this period the boundaries and concentration of the Antarctic sea ice were mapped using ESMR (Electronically Scanning Microwave Radiometer) images acquired by the Nimbus-5 satellite. These data are used both as initial conditions and to compare the model results for various time periods.

35-2170
Divergence and rotation of an ice field off Okhotsk Sea coast of Hokkaido.
Tabata, T., et al. Sea ice processes and models. Edited by R.S. Pritchard. Seattle, University of Washington Press, 1980. p.273-282. 7 refs.
Kawamura, T., Aota, M.
Sea ice distribution, Drift, Remote sensing, Polynyas, Radar photography, Ocean currents, Okhotsk Sea.

35-2171
Marine mammals inhabiting the Baffin Bay North Water in winter.
Finley, K.J., et al. *Arctic*. Dec. 1980. 33(4). p.724-738. 42 refs.
Renaud, W.E.
Marine biology, Animals, Ice edge, Fast ice, Aerial surveys, Winter, Baffin Bay.

35-2172
Quantitative composition, distribution, community structure and standing stock of sea ice microalgae in the Canadian Arctic.
Hsiao, S.I.C. *Arctic*. Dec. 1980. 33(4). p.768-793. Refs. p.791-793.
Algae, Microbiology, Sea ice, Cryobiology, Environments.

35-2173
Terrain, land use and waste drilling fluid disposal problems, Arctic Canada.
French, H.M. *Arctic*. Dec. 1980. 33(4). p.794-806. 13 refs.
Tundra, Waste disposal, Pollution, Drilling fluids, Environmental impact, Cold weather performance, Wells.

35-2174
Carcinogenic load of the environment: benzo(a)pyrene in sediments of arctic waters.
Stich, H.F., et al. *Arctic*. Dec. 1980. 33(4). p.807-814. 20 refs.
Dunn, B.P.
Bottom sediment, Pollution, Environmental impact, Chemical analysis, Canada—Northwest Territories—Mackenzie River Delta, Beaufort Sea.

35-2175
Movement of an ice-cored rock glacier, Tungsten, N.W.T., Canada, 1963-1980.
Jackson, L.E., Jr., et al. *Arctic*. Dec. 1980. 33(4). p.842-847. 4 refs.
MacDonald, G.M.
Rock glaciers, Glacier flow, Velocity, Glacial deposits, Glacier oscillation, Sediment transport.

35-2176
Carburetor ice flight testing: use of an anti-icing fuel additive.
Newman, R.L. *Journal of aircraft*. Jan. 1981. 18(1). p.5-6. 5 refs.
Antifreezes, Chemical ice prevention, Airplanes, Engines, Temperature effects, Dew point, Tests.

35-2177
Microbial ecology and decomposition in Arctic tundra and Subarctic taiga ecosystems.
Flanagan, P.W. Microbial ecology. Edited by J.A. Miles and M.W. Loutet. Berlin, Springer, 1978. p.161-168. 20 refs.
Microbiology, Primary productivity, Ecology, Tundra, Taiga, Decomposition, Organic soils, Ecosystems.

35-2178
Antarctic climatic research. (Issledovaniia klimata Antarktidy).
Dolgin, I.M., ed. Leningrad, Gidrometeoizdat, 1980. 206p. In Russian. Refs. passim. For individual papers see 35-2179-83 or F-24446, I-24433 through I-24445, and I-24447 through I-24463.
Meetings, Meteorology, Weather, Climatology, Sea ice distribution, Antarctica.
This collection of papers was presented at a conference on antarctic climatology. Analysis of data collected during long-term studies made possible the refinement of current ideas of meteorological regime, circulation and atmospheric structure in southern polar regions. Much attention is devoted to new aspects of climatology: questions of heat and moisture balance, circulation mechanisms, and upper atmosphere research using rockets. Radiation, albedo, ice sheet mass balance, ice distribution, and ozone, CO, and methane concentration in the atmosphere are also investigated.

35-2179
Short-wave radiation regime in Antarctica based on 20 years of observation. (Rezhim korotkovolnovoi radiatsii v Antarktide po rezul'tatam nabludenii za 20 let).
Marshunova, M.S., Issledovaniia klimata Antarktidy (Climatic research in the Antarctic) edited by I.M. Dolgin. Leningrad, Gidrometeoizdat, 1980. p.11-19. 4 refs. In Russian.
Solar radiation, Radiation absorption, Albedo, Antarctica.
Results of 20 years of data gathering on direct total absorbed radiation and albedo of the reflecting surface are analyzed. Patterns of temporal and spatial distribution are noted. These data will aid in determining variability in radiation streams under different cloud conditions and year-to-year variation in monthly radiation totals.

35-2180
Long-term variability in thermobaric and ice conditions in the South Orkney Islands area. (Mnogoletniaia izmenchivost' termobaricheskikh i ledovykh uslovii v raione Iuzhnykh Orkneiskikh ostrovov).
Petrov, L.S., et al. Issledovaniia klimata Antarktidy (Climatic research in the Antarctic) edited by I.M. Dolgin. Leningrad, Gidrometeoizdat, 1980. p.59-65. 7 refs. In Russian.
Liubarskii, A.N.
Sea ice distribution, Atmospheric pressure, Air temperature, Scotia Sea, South Orkney Islands.
Data gathered from 1904 to 1972 were analyzed to calculate long-term fluctuations in air temperature, pressure and number of days of ice cover at Orcadas Station. It is shown that climatic variations there have a cyclical nature and covary with arctic climate changes. A 100-yr climatic cycle was noted. There is a connection between South Orkney Islands climatic cycles and cosmic factors.

35-2181
Winter climatic conditions in the Somov Sea based on data from the drift of the *Ob'* in 1973. (Kharakteristika zimnikh klimaticheskikh uslovii moria Somova po materialam dreifa d/e *Ob'* v 1973 g.).
Petrov, L.S., et al. Issledovaniia klimata Antarktidy (Climatic research in the Antarctic) edited by I.M. Dolgin. Leningrad, Gidrometeoizdat, 1980. p.72-78. 8 refs. In Russian.
Maksimov, G.A.
Weather, Sea ice distribution, Meteorology, Antarctica—Oates Coast, Antarctica—Ross Sea.
Results of meteorological observations taken as the *Ob'* drifted in ice from March to June 1973 are analyzed.

35-2182
Glacioclimatological research topics in Antarctica. (Zadachi glatsioklimaticheskikh issledovanii v Antarktide).
Aver'ianov, V.G. Issledovaniia klimata Antarktidy (Climatic research in the Antarctic) edited by I.M. Dolgin. Leningrad, Gidrometeoizdat, 1980. p.85-89. 11 refs. In Russian.
Ice sheets, Research projects, Glacier mass balance, Antarctica.
The state of the art of glaciocliimatology with regard to antarctic ice cover is reviewed and the most pressing questions for further research are outlined.

35-2183
Method for monthly charting of antarctic atmospheric precipitation. (Metodika postroeniia mesiachnykh kart atmosfernykh osadkov Antarktidy).
Briazgin, N.N. Issledovaniia klimata Antarktidy (Climatic research in the Antarctic) edited by I.M. Dolgin. Leningrad, Gidrometeoizdat, 1980. p.106-112. 5 refs. In Russian.
Snow accumulation, Analysis (mathematics), Antarctica.
Error in measuring precipitation in Antarctica and ways to reduce it are discussed. Graphs of the annual precipitation pattern based on corrected mean totals from key stations are given. Monthly precipitation charts are constructed by using these graphs and snow-accumulation results. Variability of annual total precipitation is considered.

35-2184
Surface stability in the presence of industrial activities in permafrost areas. (Ustoichivost' poverkhnosti k tekhnogennym vozdeistviiam v oblasti vechnoi merzloty).
Grave, N.A., ed. Yakutsk, Inst. Merzlotovedeniia, SO AN SSSR, 1980. 142p. In Russian. For individual papers see 35-2185 through 35-2195. Refs. passim.
Turbina, M.I., ed.
Arctic landscapes, Human factors, Environmental protection, Cryogenic soils, Slope processes, Soil erosion, Solifluction, Tundra, Radiation, Revegetation, Mining, Pollution, Permafrost hydrology, Permafrost transformation, Permafrost forecasting.

35-2185
Place and trends of geocryologic investigations in the fields of environmental protection and rational use of natural resources in permafrost areas. (Mesto i napravleniia geokriologicheskikh issledovanii v probleme okhrany sredy i ratsional'nogo prirodopol'zovaniia v oblasti vechnoi merzloty).
Grave, N.A. Ustoichivost' poverkhnosti k tekhnogennym vozdeistviiam v oblasti vechnoi merzloty (Surface stability in the presence of industrial activities in permafrost areas) edited by N.A. Grave and M.I. Turbina. Yakutsk, Inst. Merzlotovedeniia, SO AN SSSR, 1980. p.6-12. In Russian. 14 refs.
Geocryology, Environmental protection, Arctic landscapes, Landscape types, Cryogenic soils, Plant ecology, Human factors.

35-2186
Thermal balance of northern landscape complexes and changes induced by economic development. (Teplovoi balans landshaftnykh kompleksov Severa i ego izmenenie pri tekhnogennykh vozdeistviiakh).
Pavlov, A.V. Ustoichivost' poverkh. ti k tekhnogennym vozdeistviiam v oblasti vechnoi merzloty (Surface stability in the presence of industrial activities in permafrost areas) edited by N.A. Grave and M.I. Turbina. Yakutsk, Inst. Merzlotovedeniia, SO AN SSSR, 1980. p.13-31. In Russian. 28 refs.
Cryogenic soils, Landscape types, Heat balance, Human factors, Soil erosion, Revegetation, Environmental protection.

35-2187
Radiation regime of disturbed tundra surfaces during biologic recultivation. (Radiatsionnyi rezhim podstilaiushchei poverkhnosti pri biologicheskoi rekul'tivatsii narushennykh uchastkov tundry).
Skriabin, P.N. Ustoichivost' poverkhnosti k tekhnogennym vozdeistviiam v oblasti vechnoi merzloty (Surface stability in the presence of industrial activities in permafrost areas) edited by N.A. Grave and M.I. Turbina. Yakutsk, Inst. Merzlotovedeniia, SO AN SSSR, 1980. p.32-36. In Russian. 3 refs.
Tundra, Landscape types, Human factors, Soil erosion, Revegetation, Peat, Lichens, Heat balance, Radiation balance.

35-2188
Slope processes in tundra induced by human activities. (Antropogenno obuslovlennye sklonovye protsessy v tundre).
Sukhodrovskii, V.L. Ustoichivost' poverkhnosti k tekhnogennym vozdeistviiam v oblasti vechnoi merzloty (Surface stability in the presence of industrial activities in permafrost areas) edited by N.A. Grave and M.I. Turbina. Yakutsk, Inst. Merzlotovedeniia, SO AN SSSR, 1980. p.36-42. In Russian. 10 refs.
Tundra, Cryogenic soils, Ground ice, Slope processes, Human factors, Soil erosion, Frozen fines, Solifluction, Flow rate, Vegetation factors, Environmental protection.

35-2189
Ways of reducing disturbance of ecologic systems in mining areas of permafrost regions. [Sostoianie i puti snizhenia narushenii ekologicheskoĭ sistemy pri dobyche poleznykh iskopaemykh v rafonakh mnogoletnei merzloty].
El'chaninov, E.A., Ustoĭchivost' poverkhnosti k tekhnogennym vozdeĭstviiam v oblasti vechnoĭ merzloty (Surface stability in the presence of industrial activities in permafrost areas) edited by N A Grave and M I Turbina, Yakutsk, Inst. Merzlotovedenia, SO AN SSSR, 1980, p 43-49, In Russian.
Mining, Excavation, Permafrost hydrology, Cryogeni.. soils, Environmental protection, Soil pollution, Water pollution.

35-2190
Cryogenic structure of Yakutian permafrost as a basis for long-range engineering-geological forecasts. [Kriogennoe stroenie mnogoletnemerzlykh porod IAkutii kak osnova dolgosrochnogo inzhenerno-geokriologicheskogo prognoza].
Vtiurin, B I., Ustoĭchivost' poverkhnosti k tekhnogennym vozdeĭstviiam v oblasti vechnoĭ merzloty (Surface stability in the presence of industrial activities in permafrost areas) edited by N A Grave and M I Turbina, Yakutsk, Inst. Merzlotovedenia, SO AN SSSR, 1980, p 50-57, In Russian 2 refs
Permafrost distribution, Permafrost structure, Permafrost forecasting, Economic development, USSR—Yakutia.

35-2191
Ground ice distribution in Central Yakutia as the most important factor in economic development of the cryolithozone. [Rasprostranenie podzemnykh l'dov v Tsentral'noĭ IAkutii kak vazhneishiĭ prirodnyĭ faktor pri osvoenii territorii kriolitozony].
Ivanov, M S., Ustoĭchivost' poverkhnosti k tekhnogennym vozdeĭstviiam v oblasti vechnoĭ merzloty (Surface stability in the presence of industrial activities in permafrost areas) edited by N A Grave and M I Turbina, Yakutsk, Inst. Merzlotovedeniia, SO AN SSSR, 1980, p.58-75.
Permafrost distribution, Permafrost structure, Ground ice, Ice wedges, Maps, Aerial surveys, Economic development, USSR--Yakutia.

35-2192
Engineering-geological conditions of permafrost in the coastal plains of Yakutia and its resistance to the disturbance of natural environments. [Inzhenerno-geokriologicheskie usloviia i ustoĭchivost' mnogoletnemerzlykh porod primorskikh nizmennosteĭ IAkutii k narusheniiam estestvennoĭ prirodnoĭ obstanovki].
Kuznetsova, I.L., Ustoĭchivost' poverkhnosti k tekhnogennym vozdeĭstviiam v oblasti vechnoĭ merzloty (Surface stability in the presence of industrial activities in permafrost areas) edited by N A Grave and M I Turbina, Yakutsk, Inst. Merzlotovedeniia, SO AN SSSR, 1980, p.75-107, In Russian. 18 refs
Economic development, Mining, Urban planning, Permafrost beneath structures, Permafrost hydrology, Environmental protection, USSR—Yakutia.

35-2193
Regionalization of high-ice-content permafrost areas according to stability under economic development of the central Yamal Peninsula. [Opyt raionirovaniia territorii s sil'nol'distymi porodami po ustoĭchivosti k tekhnogennym vozdeĭstviiam (na primere Srednego IAmala)].
Parmuzin, S IU., et al, Ustoĭchivost' poverkhnosti k tekhnogennym vozdeĭstviiam v oblasti vechnoĭ merzloty (Surface stability in the presence of ndustrial activities in permafrost areas) edited by N A Grave and M.I. Turbina, Yakutsk, Inst. Merzlotovedenia, SO AN SSSR, 1980, p 108-127, In Russian 18 refs
Sukhodol'skiĭ, S.E
Economic development, Maps, Permafrost beneath structures, Permafrost transformation, Permafrost structure, Permafrost hydrology, Topographic factors, Snow cover effects, USSR—Yamal Peninsula.

35-2194
Evolution of the Lake Saysar basin topography in Yakutsk caused by human activities. [Antropogennye faktory evoliutsii rel'efa kotloviny oz Saisar v g IAkutske].
Solov'ev, P A., Ustoĭchivost poverkhnosti k tekhnogennym vozdeĭstviiam v oblasti vechnoĭ merzloty (Surface stability in the presence of industrial activities in permafrost areas) edited by N A Grave and M I Turbina, Yakutsk, Inst Merzlotovedenia, SO AN SSSR, 1980, p 127-134, In Russian. 2 refs
River basins, Topographic maps, Lakes, Permafrost beneath lakes, Continuous permafrost, Human factors, USSR--Yakutsk.

35-2195
Environmental protection problems in Alaska and northern Canada related to economic development of permafrost regions. [Voprosy okhrany okruzhaiushcheĭ sredy na Aliaske i na severe Kanady v sviazi s osvoeniem oblasti vechnoĭ merzloty].
Grave, N.A., Ustoĭchivost' poverkhnosti k tekhnogennym vozdeĭstviiam v oblasti vechnoĭ merzloty (Surface stability in the presence of industrial activities in permafrost areas) ed ted by N A Grave and M I Turbina, Yakutsk, Inst. Merzlotovedenia, SO AN SSSR, 1980, p 135-141, In Russian 5 refs
Petroleum industry, Environmental protection, Pipelines, Permafrost beneath structures, Permafrost transformation, Arctic landscapes, United States—Alaska, Canada.

35-2196
Proceedings.
Conference on the Use of Icebergs Scientific and Practical Feasibility, Cambridge, UK, April 1-3, 1980, *Annals of glaciology*, 1980, Vol 1, 136p. For individual papers see 35-2197 through 35-2219 or F-24465 through F-24469, F-24471 through F-24476, F-24478, G-24477 and J-24470. For earlier conferences see 33-4688 or 11F-22079 and 32-4707 or 10F-20448
Meetings, Icebergs, Ice mechanics, Ice models, Ocean currents, Water supply.
This meeting continues the conference of 1977 in Ames, Iowa, investigating ways by which icebergs might be profitably utilized in regions of low annual rainfall The papers dwell to a large degree on iceberg mechanics, ocean currents through which icebergs drift and their effects on the drift, and the ice melting and preservation problems

35-2197
Iceberg water: an assessment.
Weeks, W F., *Annals of glaciology*, 1980, Vol 1, MP 1365, p 5-10, 27 refs
Icebergs, Water supply, Iceberg towing.
This review of the idea of using icebergs as a source of fresh water starts with a historical survey covering the period up to April 1980 and stresses how the approach to the subject has changed with time Both the progress that has been made and the problems that have either just surfaced or never been adequately addressed are discussed It is concluded that successful tows to Australia, clearly the most easily-reached potential delivery site, are possible if icebergs can retain their structural integrity during tows in high seas and if schemes can be developed for docking and processing Tows to sites in the northern hemisphere such as Saudi Arabia and California are significantly more difficult and will remain so until an effective and operationally-realistic method is developed for isolating the iceberg from the warm sea-water that will be encountered during part of the tow Whatever the ultimate resolution of the iceberg-water proposal may be research stimulated by this idea has already resulted in a major improvement in our knowledge of the life and time of real icebergs in real oceans (Auth)

35-2198
Physical characteristics and life expectancy of tabular antarctic icebergs.
Orheim, O., *Annals of glaciology*, 1980, Vol 1, p 11-18, 21 refs.
Icebergs, Ice cover thickness, Ice temperature, Physical properties, South Atlantic Ocean, Antarctica—Weddell Sea.
The Norwegian Antarctic Research Expedition 1978-79 landed on 24 tabular icebergs and flew over many others in the South Atlantic and the Weddell Sea between latitudes 54 and 76S Data were obtained on surface mass balance, stratigraphy density 10 m temperatures crevassing, distribution and age Ice thicknesses were measured by airborne radio echo-sounding (Auth mod)

35-2199
Measurements of the radiation temperature of antarctic icebergs and the surrounding surface water.
Foldvik, A., et al, *Annals of glaciology*, 1980, Vol 1, p 19-22, 9 refs.
Gammelsrod, T., Gjessing, Y
Icebergs, Thermal radiation, Water temperature.
During the Norwegian Antarctic Research Expedition 1978-79 temperature measurements of a number of icebergs and the surrounding surface water were made, using an airborne precision radiation thermometer All icebergs were embedded in cold water-masses with temperatures generally below 0 degrees C and thus the observed temperature anomalies were relatively small deltaT 1 deg Examples of the influence of icebergs on the sea surface temperature including a possible example of upwelling will be shown The temperature of the snow-covered iceberg surface was almost constant with individual variations deltaT 0.2 deg Local minima indicative of snow covered crevasses were observed (Auth)

35-2200
Flexural response of a tabular ice island to ocean swell.
Goodman, D J., et al, *Annals of glaciology*, 1980, Vol 1, p 23-27, 9 refs
Wadhams, P., Squire, V A
Sea ice, Ice islands, Flexural strength, Ocean waves, Greenland—King Oscars Fjord.

35-2201
Measurements of oscillations and flexure of icebergs.
Foldvik, A., et al, *Annals of glaciology*, 1980, Vol 1, p 29-30, 2 refs
Gammelsrod, T., Gjessing, Y
Icebergs, Flexural strength, Oscillations.
During the Norwegian Antarctic Research Expedition 1978-79, direct measurements of oscillations were carried out on 15 icebergs using a tiltmeter with an accuracy of 10 micro-rad The amplitude of the oscillations varied from zero to about 100 micro-rad The zero amplitude indicates that the berg was grounded and this was confirmed by echo-sounding from the ship The observed oscillation periods ranged from 16 to 50 s The observed oscillation periods and the calculated values based on the dimensions and mean density of the bergs were compared and the results are discussed The flexure of the berg was measured with a theodolite and stakes Relative movements exceeding the accuracy of the system (1mm over 1 km distance) were not observed (Auth)

35-2202
Studies of icebergs, ice fronts and ice walls using side-scanning sonar.
Klepsvik, J O., et al, *Annals of glaciology*, 1980, Vol 1, p.31-36, 1 ref.
Fossum, B A
Icebergs, Ice shelves, Acoustic measurement, Antarctica—Weddell Sea.
During the Norwegian Antarctic Research Expedition of 1978-79, a number of experiments were carried out using side-scanning solar techniques for under-water mapping of icebergs ice fronts and ice walls, and for studies of active ploughing areas off ice fronts This paper presents the techniques and some results together with views on operational and environmental aspects of using side-scanning sonar in the Antarctic. From the sonographs it is possible to measure depths of icebergs and ice fronts, and to estimate the magnitudes of shape anomalies Vertical profiles of ice fronts show great variations depending on whether they are grounded or floating Also the acoustic signatures vary according to the elapsed time since calving (Auth)

35-2203
Viscoelastic analysis of calving glaciers.
Reddy, D V., et al, *Annals of glaciology*, 1980, Vol 1, p 37-41, 26 refs
Bobby, W., Arockiasamy, M., Dempster, R T
Ice shelves, Calving, Floating ice, Viscoelasticity.

35-2204
Stability of icebergs.
Bass, D W., *Annals of glaciology*, 1980 Vol 1, p 43-47 5 refs.
Icebergs, Stability.

35-2205
Use of catastrophe theory to analyse the stability and toppling of icebergs.
Nye, J F., et al, *Annals of glaciology*, 1980, Vol.1, p 49-54, 6 refs
Potter, J R
Icebergs, Stability.

35-2206
Comments on Southern Ocean near-surface circulation and its variability.
Gordon, A L., *Annals of glaciology*, 1980, Vol 1, p 57-61, Includes discussion 35 refs
Ocean currents.
This literature review discusses the mean and variable surface-layer circulation of the Southern Ocean The variable components are equal to or even more energetic than the mean circulation Therefore circulation charts often do not present the significant currents that exist during specific periods (Auth)

35-2207
Iceberg oscillations and ocean waves.
Schwerdtfeger, P., *Annals of glaciology*, 1980, Vol 1, p 63-65, 1 ref
Icebergs, Oscillations, Ocean waves.
The frequencies of both linear and angular oscillations in a vertical plane of a floating iceberg are shown to converge as the horizontal dimensions become relatively larger For icebergs of thickness of 250 m the calculated period of about 30 s is supported by actual observations which have been reported Because swell in the Southern Ocean may extend to such long periods, a critical relationship between iceberg dimensions and ocean wavelengths has been formulated This relates the conditions under which the length and natural period of an iceberg may respectively coincide with the wavelength and wave period of the ocean (Auth)

35-2208
Flow around icebergs.
Foldvik, A., et al. *Annals of glaciology*, 1980. Vol 1, p 67-70, 3 refs
Gammelsrod, T., Gjessing, Y
Icebergs, Ocean currents, Water flow.
During the Norwegian Antarctic Research Expedition 1978-79 two experiments were carried out to measure flow around icebergs. Drogues were equipped with surface markers constructed to drift with the flow at various levels down to 260 m. They were tracked by a helicopter and a Motorola positioning system. As expected the surface-layer (0 to 20 m) flow was wind-induced but even at greater depths a relative motion of a few cm/s between the water and the iceberg was measured. Such measurements are important for the determination of drag on icebergs, and for melting and erosion processes. (Auth.)

35-2209
Iceberg-seabed interaction (northern Labrador Sea).
Barrie, J.V., *Annals of glaciology*. 1980. Vol 1, p 71-76, 14 refs
Icebergs, Ice scoring, Bottom sediment, Ocean currents.

35-2210
Prediction of an iceberg drift trajectory during a storm.
Sodhi, D.S., et al. *Annals of glaciology*, 1980. Vol 1, p 77-82, 9 refs
El-Tahan, M.
Icebergs, Drift, Storms, Mathematical models.

35-2211
Some satellite-tracked iceberg drifts in the Antarctic.
Vinje, T.E., *Annals of glaciology*, 1980, Vol.1, p.83-87, 12 refs.
Icebergs, Drift, Wind factors, Ocean currents.
The drift of eight tabular icebergs is discussed. In spite of large differences in the vertical dimension, the various icebergs seem to react in a similar manner to wind effects in areas covered with sea ice. Measurements indicate that it takes between one and five years for an iceberg to move into the westerlies from the coastal areas between about 50E and the Antarctic Peninsula.

35-2212
Investigations on the currents influencing iceberg motion.
Dhalluin, M., *Annals of glaciology*, 1980. Vol 1, p 89-93, 2 refs.
Icebergs, Drift, Ocean currents.
Several factors contribute to the natural drift of an iceberg, and among these, currents play an important part on the translation and rotation. Some information exists on surface currents in sub-Antarctic areas, but an iceberg behaves as a current integrator due to its draught and it is assumed to drift under the action of a "mean" current. In order to measure the mean current, five drogued buoys were launched in July-August 1979. These buoys were located by Argos satellite transponders. The drift of the buoys gives the mean current from 0 to 230 m depth in the Southern Ocean. Some corrections must be made on the measured drifting speed of the drogued buoys, because of the influence of the wind on the above water portion of the buoys. (Auth.)

35-2213
Physical processes involved in the melting of icebergs.
Huppert, H.E., *Annals of glaciology*, 1980. Vol.1, p 97-101, 19 refs
Icebergs, Ice melting.
The causes of iceberg deterioration can be discussed under three broad headings: wave-induced melting at the water line, breaking, and melting at the top, bottom, and sides. A short summary of current understanding under the first two headings is presented. It is then argued, under the third heading, that the melt rate at the sides of a tabular Antarctic iceberg is likely to exceed that at the top and bottom. The behaviour of the entraining plume which forms at the side of an iceberg when it melts in water of uniform salinity is outlined. Another form of convection, occurring when the ambient water is stratified, is then described, in this case the melt water spreads out in a series of almost horizontal layers. Finally, field observations on iceberg melting are discussed. (Auth.)

35-2214
Antarctic iceberg melt rates derived from size distributions and movement rates.
Budd, W.F., et al. *Annals of glaciology*, 1980. Vol 1, p 103-112, 13 refs
Jacka, T.H., Morgan, V.I
Icebergs, Ice melting, Drift.
The melt rates of Antarctic icebergs were based primarily on the distribution of iceberg concentrations. Recent more detailed data have been obtained, especially north of lat 60S which allow more precise calculations of the changes in size during drifting. On ANARE voyages each summer since 1977, observations of icebergs have included photographs, number per unit area from ship's radar, widths, heights, and shapes. These data have allowed separate calculations to be made for tabular icebergs which give a clearer indication of the contribution to average size changes of melting, breakage, and rollover. New data from satellite transponders placed on icebergs have provided more definite estimates of the average northward and then eastward drift rates of icebergs near 90E. Combined with the new data on size more accurate melt rates have been derived. (Auth. mod.)

35-2215
Iceberg melt-driven convection inferred from field measurements of temperature.
Josberger, E.G., et al. *Annals of glaciology*, 1980. Vol.1, p.113-117, 7 refs
Neshyba, S.
Icebergs, Grounded ice, Ice temperature, Water temperature, Convection.

35-2216
Melting of free-drifting icebergs.
Russell-Head, D.S., *Annals of glaciology*, 1980. Vol 1, p 119-122, 8 refs
Icebergs, Ice melting, Laboratory techniques, Salinity, Temperature effects.

35-2217
Iceberg dynamical modelling.
Mauviel, F. *Annals of glaciology*, 1980 Vol.1, p 123-127, 3 refs
Icebergs, Ice models, Environmental tests.

35-2218
Design parameters for a South African iceberg power and water project.
DeMarle, D.J., *Annals of glaciology*, 1980 Vol 1, p.129-133, 14 refs
Icebergs, Water supply, Electric power, South Africa.
Construction of an iceberg processing plant at Saldanha Bay, Republic of South Africa, is proposed. A reservoir would be constructed at Riebaai for ice storage. Tidal forces would be harnessed to pump the warm water of Saldanha Lagoon over heat exchangers (using ammonia or propane gas as a heat exchange medium), thus providing power for electrical generators and for melting ice. A functional analysis of operations is presented together with proposed costs. It is suggested that the fresh water and electricity produced by this system will cost 6 cents/cu m and 5 cents/kWH, respectively. Antarctica provides a ready source of icebergs for use in this project. (Auth. mod.)

35-2219
Some environmental questions: an after-dinner address.
Holdgate, M.W., *Annals of glaciology*, 1980. Vol 1, p.135-136
Iceberg towing, Environmental impact.
The author broaches some questions on the environments which icebergs will cross during towing operations. Specifically he poses questions such as: are we able to guarantee keeping Indian Ocean shipping lanes free of growlers and bergy bits from antarctic icebergs to avoid an unsuspecting supertanker oil spill? Or how will marine life at a tropical towing destination port react to the sudden temperature change? And who owns the icebergs? What are some of the legal considerations?

35-2220
Proceedings of the 48th annual meeting.
Western Snow Conference, Ft. Collins, Colorado State University, 1980, 137p., Refs passim. For individual papers see 35-2221 through 35-2235
Snow hydrology, Snowmelt, Snow water equivalent, Runoff forecasting, Stream flow, Meetings.

35-2221
Studying snowdrifting problems with small-scale models outdoors.
Tabler, R.D., et al. *Western Snow Conference Proceedings*, 1980, 48th, p 1-13, 18 refs
Jairell, R.L
Snowdrifts, Snow fences, Blowing snow, Snow accumulation, Mathematical models.

35-2222
Watershed information system.
Thomsen, A.G., et al. *Western Snow Conference Proceedings*, 1980, 48th, p 14-25, 3 refs
Striffler, W.D
Watersheds, Snowmelt, Runoff forecasting, Snow hydrology, Snow water equivalent, Remote sensing, Mountains, LANDSAT, Simulation, Snow cover distribution.

35-2223
Surface wind structure in forest clearings during a chinook.
Swanson, R.H., *Western Snow Conference Proceedings*, 1980, 48th, p 26-30, 14 refs
Forest canopy, Wind factors, Wind velocity, Heat transfer, Snow evaporation, Advection.

35-2224
Snow drifting on phosphate mine dumps in southeastern Idaho.
Chacho, E., et al. *Western Snow Conference Proceedings*, 1980, 48th, p 31-42, 10 refs
Molnau, M.
Snowdrifts, Mining, Wind factors, Slope orientation, Topographic effects, Models.

35-2225
Areal determination of the influence of a forest canopy on the surface radiant energy exchange.
Marks, B., et al. *Western Snow Conference Proceedings*, 1980, 48th, p.43-49, 7 refs
Marks, D
Snow surface, Forest canopy, Alpine landscapes, Radiation balance, Remote sensing, LANDSAT, Solar radiation, Models, Climatology.

35-2226
Snow management for crop production on the Canadian prairies.
Steppuhn, H., *Western Snow Conference Proceedings*, 1980, 48th, p 50-61, 23 refs
Snow cover distribution, Snow cover stability, Soil water, Water retention, Agriculture, Topographic features, Snow fences.

35-2227
Undisturbed measurement of the energy and mass balance of a deep alpine snowcover.
Davis, R., et al. *Western Snow Conference Proceedings*, 1980, 48th, p 62-67, 10 refs
Marks, D
Snow cover, Mass balance, Heat balance, Snow hydrology, Snowmelt, Snow water content, Snow air interface, Alpine landscapes, Solar radiation, Radiometers.

35-2228
Spectral albedo of snow: effects of age, cloud cover, sun angle, and impurities.
Wiscombe, W.J., et al. *Western Snow Conference Proceedings*, 1980, 48th, p 68-71, 5 refs
Warren, S.G
Snow optics, Albedo, Snow depth, Cloud cover, Snow impurities, Sunlight, Aerosols, Dust, Models.

35-2229
Snowmelt modeling of upper Missouri River watersheds with SSARR.
Cundy, T.W., et al. *Western Snow Conference Proceedings*, 1980, 48th, p 72-82, 9 refs
Brooks, K.N., Sveum, D
Snowmelt, Runoff forecasting, Watersheds, Snow water equivalent, Stream flow, Reservoirs, Temperature effects, Altitude, Models.

35-2230
Importance of water supply forecasts in power planning.
Gordon, W.R., et al. *Western Snow Conference Proceedings*, 1980, 48th, p.83-87
Lamb, R.C
Water supply, Runoff forecasting, Reservoirs, Snow cover, Forecasting, Precipitation (meteorology), Electric power.

35-2231
Mapping snow surface temperature from thermal satellite data in the southern Sierra Nevada.
Frampton, M., et al. *Western Snow Conference Proceedings*, 1980, 48th, p.88-96, 19 refs.
Marks, D.
Snow surface temperature, Snow hydrology, Heat transfer, Mapping, Remote sensing, Alpine landscapes, Runoff forecasting, Snowmelt, Mountains, Infrared photography.

35-2232
Operational airborne measurement of snow water equivalent using natural terrestrial gamma radiation.
Carroll, T.R., et al. *Western Snow Conference Proceedings*, 1980, 48th, p 97-106, 18 refs
Vadnais, K.G
Snow water equivalent, Snow surveys, Airborne equipment, Gamma irradiation.

35-2233
Proposed metric snow samplers.
Farnes, P.E., et al. *Western Snow Conference Proceedings*, 1980, 48th, p 107-119, 3 refs
Goodison, B.E., Peterson, N.R., Richards, R.P.
Snow samplers, Snow water equivalent, Measuring instruments.

35-2234
Calibration procedure for airborne gamma ray snow surveys.
Glynn, J.E., et al. *Western Snow Conference Proceedings*, 1980, 48th, p 120-127, 8 refs
Grasty, R.L
Snow water equivalent, Snow surveys, Remote sensing, Gamma irradiation.

35-2235
Snowmelt observations in Alberta.
Barnaby, I.E., *Western Snow Conference Proceedings*, 1980, 48th, p 128-137, 3 refs
Snowmelt, Snow depth, Snow cover, Temperature effects, Solar radiation.

35-2236
Summit house: forces and forms cooperating in an extreme environment.
Goldstein, E W., Cambridge, Massachusetts Institute of Technology, Sep 1980, 103p, M A thesis Refs p.93-502
Buildings, Cold weather construction, Shelters, Climatic factors, Mountains, Topographic effects, Wind factors, Models.

35-2237
Some physical effects of thermal effluents in Boundary Reservoir during winter.
Kennedy, B.C, *Canadian water resources journal*, Summer 1978, 3(3), p.97-110, In English with French summary 4 refs
Water temperature, Reservoirs, Thermal regime, Polynyas, Radiometry, Winter, Airborne radar, Electric power.

35-2238
Morphology of ice structure in a pipe at or near transition Reynolds numbers.
Gilpin, R R, *Journal of heat transfer*, 1979, Vol 75, p 89-94, 10 refs
Water pipes, Ice growth, Ice structure, Pipeline freezing, Water flow, Water pressure, Water temperature, Phase transformations, Ice cover thickness, Turbulent flow, Viscosity, Water density.

35-2239
Selective feeding of Red Phalaropes on zooplankton of arctic ponds.
Dodson, S.I., et al, *Ecology*, 1980, 61(4), p 755-763, 37 refs
Egger, D.L
Ponds, Tundra, Plankton, Animals, Birds.

35-2240
Frazil ice in rivers and oceans.
Martin, S, *Annual review of fluid mechanics*, 1981, Vol.13, p 379-397, 49 refs
Frazil ice, River ice, Sea ice, Ice formation, Ice crystal structure, Ice mechanics, Sintering, Heat transfer, Viscosity, Polynyas, Ocean currents.
A discussion is presented on the problems of frazil ice formation, flow, and deposition in rivers and oceans The underwater observations in the Arctic and Antarctic are very similar to the river observations Formation of large billows of frazil platelets was observed under solid ice cover in McMurdo Sound, and on the surface in large polynyas and under the ice in the Mirnyy Station area The under-ice dispersal of frazil ice depends on local currents and in regions such as Molodezhnaya Road where the current velocity is zero, frazil-ice billows are not observed

35-2241
Annual report, 1980.
Alaska. University. Institute of Water Resources, 1980,. 32p
Research projects, Water reserves, Economic development, United States—Alaska.

35-2242
Production, assimilation and accumulation of organic matter in ecosystems.
Batzli, G.O, *Journal of theoretical biology*, 1974, Vol.45, p.205-217, 18 refs.
Organic soils, Ecosystems, Heat transfer, Mathematical models.

35-2243
Uniqueness of steady state flows of glaciers and ice sheets.
Fowler, A C, et al, *Royal Astronomical Society, London Geophysical journal*, 1980, Vol 63, p 333-345, 33 refs
Larson, D.A.
Glacier flow, Ice sheets, Ice mechanics, Flow measurement, Boundary value problems, Ice temperature, Mathematical models.

35-2244
Airborne impulse radar sounding of sea ice.
Rossiter, J R, et al, Canadian Symposium on Remote Sensing, 6th, Halifax, Nova Scotia, May 21-23, 1980 Proceedings, (1980), p 187-191, In English with French summary, 14 refs
Butt, K A., Gamberg, J B., Ridings, T F
Sea ice, Ice physics, Ice cover thickness, Ice electrical properties, Ice crystal structure, Radio echo soundings, Ice salinity, Ice temperature, Airborne radar.

35-2245
Interaction between wind and snow surface.
Kobayashi, S., et al, *Boundary-layer meteorology*, 1979, Vol.16, p.35-47, 21 refs
Ishida, T
Snow surface, Surface roughness, Wind velocity, Turbulent flow, Snowdrifts, Erosion, Boundary layer.

35-2246
Natural and regulated alpine rivers—resemblances and differences in morphology, their influence on river fauna. (Natürliche und korrigierte alpine Flüsse Gemeinsamkeiten und Unterschiede der Gerinne und Sohlenformen, ihr Einfluss auf die Flussfauna).
Jaeggi, M, *Wasser, Energie, Luft Eau, energie, air*, 1980, No 3, p 85-90 In German with English summary 19 refs
River flow, Alpine landscapes, River basins, Stability, Geomorphology, Bottom topography, Animals.

35-2247
Oil in sea ice.
Lewis, E L, *Institute of Ocean Sciences, Patricia Bay, Sidney, B C Pacific marine science report*, 1976, No 76-12, 26p
Sea ice, Oil spills, Offshore drilling, Water pollution, Migration, Ice water interface, Ice crystal structure, Subglacial observations.

35-2248
Icing on fishing vessels: some solutions. *Alaska seas and coasts*, Feb. 15, 1974, 2(1), p 5
Ship icing, Countermeasures, Ice removal.

35-2249
Movement of continental ice. (K voprosu o dvizhenii materikovykh l'dov).
Bagrov, N A., *Meteorologiya i gidrologiya*, Nov 1980, No 11, p 54-62, In Russian with English summary 12 refs
Ice sheets, Land ice, Ice mechanics, Glacier flow, Antarctica.
The problem of motion of continental ice is considered using the hypothesis of linearity of resistance to motion It is ascertained that the motion speed is proportional to the glacier surface inclination A model of a circular glacier is constructed and applied to the Antarctic glacier Results are in fairly good agreement with available data when one component (the resistance coefficient) is given (Auth.)

35-2250
Radar methods of studying the earth. (Radiolokatsionnye metody issledovaniya zemli).
Mel'nik, Iu A, et al, Moscow, Sovetskoe radio, 1980, 161p, In Russian 118 refs
Airborne radar, Radiometry, Radar echoes, Sea ice, Remote sensing, Ice surveys, Meteorology, Vegetation, Earth crust.

35-2251
All-Union conference on forecasting changes in cryogenic soils due to economic development, Pushchino, Oct. 29-31, 1980. Abstracts. (Tezisy dokladov).
Vsesoiuznaia konferentsiia po prognozu izmeneniia kriogennykh pochv pod vliianiem khoziaistvennogo osvoeniia territorii, Pushchino, Oct 29-31, 1980, Pushchino, 1980, 203p, In Russian with English table of contents enclosed. For selected abstracts see 35-2252 through 35-2314. Refs, passim.
Chigir, V.G, ed.
Meetings, Cryogenic soils, Soil formation, Soil temperature, Frost penetration, Soil water migration, Phase transformations, Subarctic landscapes, Tundra, Forest tundra, Taiga, Environmental protection, Classifications, Terminology, Climatic changes, Rivers, Heat transfer, Swamps.

35-2252
Problems of rational development and preservation of soils in northern territories. (Problemy ratsional'nogo osvoeniia i okhrany pochvennogo pokrova severnykh territorii).
Kovda, V A, et al, Vsesoiuznaia konferentsiya po prognozu izmeneniia kriogennykh pochv pod vliianiem khoziaistvennogo osvoeniia territorii, Pushchino, Oct. 29-31, 1980 Tezisy dokladov (All-Union conference on forecasting changes in cryogenic soils due to economic development, Pushchino, Oct 29-31, 1980 Abstracts) edited by V G Chigir, Pushchino, 1980, p 5-8, In Russian
Chigir, V G, Fomnykh, L A.
Cryogenic soils, Frost penetration, Swamps, Seasonal freeze thaw, Drainage, Soil temperature, Rivers, Permafrost control, Heat transfer, Snow cover effect.

35-2253
Concepts, terminology and problems in the classification of freezing soils. (Ponatiia, terminy i voprosy klassifikatsii promerzaiushchikh pochv).
Sokolov, I A et al, Vsesoiuznaia konferentsiia po prognozu izmeneniia kriogennykh pochv pod vliianiem khoziaistvennogo osvoeniia territorii, Pushchino, Oct 29-31, 1980 Tezisy dokladov (All-Union conference on forecasting changes in cryogenic soils due to economic development, Pushchino, Oct 29-31, 1980 Abstracts) edited by V.G. Chigir, Pushchino, 1980, p 9-10, In Russian
Cryogenic soils, Active layer, Seasonal freeze thaw, Frost penetration, Soil water migration, Phase transformations, Classifications, Terminology.

35-2254
Soils of the North: concepts of ecology, origin, geography classification and nomenclature. (Pochvy Severa ekologo-geneticheskaia, geograficheskaia i klassifikatsionno-nomenklaturnaia kontseptsii).
Sokolov, I A, et al, Vsesoiuznaia konferentsiia po prognozu izmeneniia kriogennykh pochv pod vliianiem khoziaistvennogo osvoeniia territorii, Pushchino, Oct 29-31, 1980 Tezisy dokladov (All-Union conference on forecasting changes in cryogenic soils due to economic development, Pushchino, Oct 29-31, 1980 Abstracts) edited by V G Chigir, Pushchino, 1980, p 11-13, In Russian
Cryogenic soils, Subarctic landscapes, Tundra, Soil formation, Forest tundra, Taiga, Geography, Ecology, Classifications, Terminology.

35-2255
Forecasting changes in cryogenic soils of the world due to human activities. (Prognoz izmeneniia kriogennykh pochv mira pod vliianiem antropogennogo vozdeistviia na klimat).
Makeev, O V, Vsesoiuznaia konferentsiia po prognozu izmeneniia kriogennykh pochv pod vliianiem khoziaistvennogo osvoeniia territorii, Pushchino, Oct 29-31, 1980 Tezisy dokladov (All-Union conference on forecasting changes in cryogenic soils due to economic development, Pushchino, Oct 29-31, 1980 Abstracts) edited by V.G Chigir, Pushchino, 1980, p 13-15, In Russian
Cryogenic soils, Human factors, Soil chemistry, Soil temperature, Climatic changes.

35-2256
Climate of cryogenic soils and its control. (Klimat merzlotnykh pochv i ego regulirovanie).
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Swamps, Cryogenic soils, Thixotropy, Economic development, Ground ice, Tundra, Drainage, Construction, Soil erosion, Environmental protection.

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Alpine tundra, Mountain soils, Soil formation, Cryogenic soils, Taiga.

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Cryogenic soils, Soil formation, Soil profiles, Active layer, Freeze thaw cycles, Solifluction, Cryoturbation.

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Tundra, Cryogenic soils, Loams, Thixotropy, Solifluction, Active layer, Soil profiles, USSR—Vorkuta.

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Taiga, Landscape types, Cryogenic soils, Mountain soils, Soil profiles, Soil chemistry.

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Subarctic landscapes, Cryogenic soils, Soil temperature, Human factors, Snow cover effect, Vegetation factors.

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Alpine landscapes, Cryogenic soils, Forest soils, Taiga, Permafrost distribution, Soil profiles, Ground ice, Soil formation.

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Forest soils, Cryogenic soils, Seasonal freeze thaw, Litter, Soil temperature.

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Cryogenic soils, Soil temperature, Mapping.

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Effect of cryogenesis on physical properties and moisture regime of cryogenic meadow-swamp soils of the Baykal Amur railroad area. (Vliianie kriogeneza na fizicheskie svoĭstva i vodnyĭ rezhim merzlotnykh lugovo-bolotnykh pochv (na primere pochv zony BAMa)).
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Permafrost distribution, Swamps, Meadow soils, Cryogenic soils, Permafrost thickness, Permafrost depth, Soil formation, USSR—Chita.

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Phase composition of water in frozen soils and their supercooling and freezing temperatures. (Fazovyĭ sostav vody v merzlykh pochvogruntakh i temperatury ikh pereokhlazhdeniia i zamerzaniia).
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Soil freezing, Soil water migration, Phase transformations, Frozen fines, Soil temperature, Unfrozen water content, Supercooling.

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Frozen fines, Freeze thaw cycles, Moisture transfer, Frost penetration, Phase transformations, Sands, Test equipment.

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Forest land, Paludification, Soil freezing, Drainage, Soil temperature.

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Tundra, Cryogenic soils, Thermal regime, Soil chemistry, Vegetation factors, Permafrost depth.

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Taiga, Landscape types, Cryogenic soils, Soil water, Thermal regime, Paludification, Land reclamation.

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Forestry, Forest soils, Freeze thaw cycles, Soil temperature, Frost penetration, Vegetation factors, Snow cover effect.

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Cryogenic soils, Soil temperature, Vegetation, Roots, Soil profiles, Irrigation, Permafrost depth, USSR—Transbaikal.

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Meadow soils, Swamps, Peat, Cryogenic soils, Albedo, Soil temperature, Frost penetration, Snow cover effect.

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Forest soils, Cryogenic soils, Soil temperature, Vegetation factors, Mosses.

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Taiga, Cryogenic soils, Soil temperature. Forestry.

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Quaternary deposits, Podsol, Soil profiles, Landscape types, Soil physics, Soil chemistry.

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Landscape types, Cryogenic soils. Soil formation, Polygonal topography, USSR—Bol'shezemel'skaya Tundra.

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Lake water, Icebound lakes, Ice conditions, Subglacial observations, Water temperature, Water chemistry.

35-2332
Vertical temperature distribution in lakes during subglacial warming of water in the spring. [Vertikal'noe raspredelenie temperatury v ozerakh v period vesennego podlednogo progreva vod],
Ivanov, A.V., et al, Gidrologiia i gidrokhimiia vodoemov razlichnykh klimaticheskikh zon (Hydrology and hydrochemistry of water bodies in different climatic zones) edited by A.V. Ivanov, Vladivostok, 1980, p.3-14, In Russian. 34 refs.
Parfenov, IU.V.
Icebound lakes, Subglacial observations, Water temperature, Temperature distribution.

35-2333
Thermal regime in lakes of the Kodar Range. [Termicheskiĭ rezhim gornykh ozer khrebta Kodar],
Glavatskiĭ, N.S., et al, Gidrologiia i gidrokhimiia vodoemov razlichnykh klimaticheskikh zon (Hydrology and hydrochemistry of water bodies in different climatic zones) edited by A.V. Ivanov, Vladivostok, 1980, p.15-28, In Russian. 7 refs.
Kirichenko, A.V.
Alpine landscapes, Snow line, Lakes, Ice conditions, Thermal regime, Heat transfer.

35-2334
Dynamics of thermal processes. [Dinamika teplovykh protsessov],
Shvets, I.T., ed, Kiev, Naukova dumka, 1980, 180p., In Russian. for selected papers see 35-2335 and 35-2336. Refs. passim.
Pipelines, Thermal regime, Freeze thaw cycles, Stefan problem, Soil freezing, Soil water migration, Frost penetration, Capillarity, Heat transfer, Mathematical models.

35-2335
Dynamics of thermal regime in the pipeline-ground-air system. [Dinamika teplovogo rezhima sistemy gazoprovod-grunt-vozdukh],
Koshcheev, A.A , et al, Dinamika teplovykh protsessov (Dynamics of thermal processes) edited by I.T. Shvets, Kiev, Naukova dumka, 1980, p.20-26, In Russian. 7 refs.
Tarabrin, V.A.
Pipelines, Thermal regime, Soil temperature, Air temperature, Heat transfer, Freeze thaw cycles.

35-2336
Dynamics of natural temperature fields in the ground. [Dinamika estestvennogo temperaturnogo polia grunta],
Tarabrin, V.A., et al, Dinamika teplovykh protsessov (Dynamics of thermal processes) edited by I.T. Shvets, Kiev, Naukova dumka, 1980, p.106-111, In Russian. 17 refs.
Alekseeva, G.V.
Stefan problem, Soil freezing, Soil water migration, Capillarity, Frost penetration, Mathematical models.

35-2337
Rapid-sequence stereophotogrammetry of avalanches. [La stéréophotogrammétrie à cadence rapide d'avalanches], *France. Centre technique du génie rural des eaux et des forêts. Informations techniques*, Sep. 1980, No.39, 4p., In French. 6 refs.
Avalanche mechanics, Velocity, Topographic effects, Profiles, Stereoscopy, Photogrammetry.

35-2338
Weathering of sandstone by the combined action of frost and salt.
Williams, R.B.G., et al, *Earth surface processes and landforms*, Jan.-Feb. 1981, 6(1), p.1-9, 11 refs.
Robinson, D.A.
Frost weathering, Salinity, Rocks, Freeze thaw cycles, Laboratory techniques.

35-2339
Charge transfer accompanying individual collisions between ice particles and its role in thunderstorm electrification.
Gaskell, W., et al, *Royal Meteorological Society, London. Quarterly journal*, Oct. 1980, 106(450), p.841-854, 29 refs.
Illingworth, A.J.
Ice electrical properties, Charge transfer, Ice crystal collision, Hailstone electrification, Laboratory techniques.

35-2340
On the angular variation of solar reflectance of snow.
Choudhury, B.J., et al, *Journal of geophysical research*, Jan. 20, 1981, 86(C1), p.465-472, 35 refs.
Chang, A.T.C.
Solar radiation, Reflectivity, Snow optics, Attenuation.

35-2341
Winter avalanche activity and weather in a Canterbury alpine basin.
McNulty, D., et al, *New Zealand journal of geology and geophysics*, 1980, 23(1), p.103-111, 11 refs.
Fitzharris, B.B.
Avalanches, Snow cover, New Zealand.

35-2342
Proceedings.
Symposium on Snow in Motion, Fort Collins, Colorado, Aug. 12-17, 1979, *Journal of glaciology*, 1980, 26(94), 527p., In English with French and German summaries. Refs. passim. For individual papers see 35-2343 through 35-2393.
Glen, J.W., ed.
Avalanche formation, Avalanche mechanics, Velocity, Topographic effects, Climatic factors, Snow cover stability, Friction, Wind velocity, Impact strength, Analysis (mathematics).
Included are 12 abstracts of papers presented at the Symposium, but not published in full in this volume.

35-2343
Avalanche activity in Iceland, climatic conditions, and terrain features.
Björnsson, H., *Journal of glaciology*, 1980, 26(94), p.13-23, 3 refs., In English with French and German summaries.
Avalanche formation, Avalanche mechanics, Climatic factors, Topographic features, Iceland.

35-2344
Research on snow cover in China and the avalanche phenomena of Batura Glacier in Pakistan.
Yafeng, S., et al, *Journal of glaciology*, 1980, 26(94), p.25-30, 4 refs , In English with French and German summaries.
Wenying, W.
Avalanche formation, Snow cover stability, Snowdrifts, China.

35-2345
Avalanche hazard in the Cairngorm Mountains, Scotland.
Ward, R.G.W., *Journal of glaciology*, 1980, 26(94), p.31-41, 16 refs., In English with French and German summaries.
Avalanche formation, Avalanche deposits, Snow accumulation, Slope orientation, Accidents.

35-2346
Frequency of major avalanche winters.
Fitzharris, B.B., et al, *Journal of glaciology*, 1980, 26(94), p.43-52, 11 refs., In English with French and German summaries.
Schaerer, P.A.
Avalanche formation, Avalanche deposits, Snow accumulation, Snowfall, Climatic factors, Statistical analysis.

35-2347
Process-oriented model for simulating avalanche danger.
Judson, A., et al, *Journal of glaciology*, 1980, 26(94), p.53-63, 28 refs., In English with French and German summaries.
Leaf, C.F., Brink, G.E.
Avalanche formation, Avalanche modeling, Avalanche mechanics, Snow depth, Snow temperature, Metamorphism (snow), Temperature gradients, Wind factors, Computer applications.

35-2348
Simultaneous measurements of stability indices and characteristic parameters describing the snow cover and the weather in fracture zones of avalanches.
Gubler, H., *Journal of glaciology*, 1980, 26(94), p.65-74, 6 refs., In English with French and German summaries.
Avalanche formation, Snow cover stability, Slope orientation, Climatic factors, Snow depth, Mass flow, Snowdrifts, Snow temperature, Computer applications.

35-2349
Fundamental processes in conventional avalanche forecasting.
LaChapelle, E.R., *Journal of glaciology*, 1980, 26(94), p.75-84, 13 refs., In English with French and German summaries.
Avalanche forecasting, Snow cover stability, Climatic factors, Computer applications.

35-2350
Snow-slab studies at Whistler Mountain, British Columbia, Canada.
Stethem, C., et al, *Journal of glaciology*, 1980, 26(94), p.85-91, 4 refs., In English with French and German summaries.
Perla, R.
Avalanche formation, Slope orientation, Snow cover stability, Snow crystal structure, Snow temperature, Snow density.

35-2351
Credibility of avalanche warnings.
Williams, K., *Journal of glaciology*, 1980, 26(94), p.93-96, 6 refs., In English with French and German summaries.
Avalanche forecasting, Avalanche formation, Accuracy.

35-2352
University course in snow dynamics—a stepping-stone to career interests in avalanche hazards.
Montagne, J., *Journal of glaciology*, 1980, 26(94), p.97-103, 10 refs., In English with French and German summaries.
Avalanche mechanics, Snow mechanics, Avalanche formation, Education.

35-2353
Avalanche education for skiers.
Valla, F., *Journal of glaciology*, 1980, 26(94), p.105-107, In English with French and German summaries.
Avalanches, Education, Skis.

35-2354
Calculation of avalanche friction coefficients from field data.
Martinelli, M., Jr., et al, *Journal of glaciology*, 1980, 26(94), p.109-119, 9 refs., In English with French and German summaries.
Lang, T.E., Mears, A.I.
Avalanche formation, Avalanche mechanics, Friction, Velocity, Analysis (mathematics), Computer programs.

35-2355
Observed maximum run-out distance of snow avalanches and the determination of the friction coefficients *mu* and *xi*.
Buser, O., et al, *Journal of glaciology*, 1980, 26(94), p.121-130, 9 refs., In English with French and German summaries.
Frutiger, H.
Avalanche mechanics, Friction, Velocity, Distribution, Analysis (mathematics), Avalanche tracks.

35-2356
Modeling of snow flow.
Dent, J.D., et al, *Journal of glaciology*, 1980, 26(94), p.131-140, 6 refs., In English with French and German summaries.
Lang, T.E.
Snow mechanics, Avalanche mechanics, Velocity, Friction, Flow measurement, Computerized simulation, Analysis (mathematics).

35-2357
Study on high-speed avalanches in the Kurobe Canyon, Japan.
Shimizu, H., et al, *Journal of glaciology*, 1980, 26(94), p.141-151, 9 refs., In English with French and German summaries.
Avalanche mechanics, Velocity, Impact strength, Avalanche wind, Atmospheric pressure.

35-2358
Fragment-flow model of dry-snow avalanches.
Mears, A.I., *Journal of glaciology*, 1980, 26(94), p.153-163, 16 refs., In English with French and German summaries.
Avalanche formation, Avalanche mechanics, Velocity, Boundary layer, Flow measurement, Mathematical models.

35-2359
Empirical calculations of snow-avalanche run-out distance based on topographic parameters.
Lied, K., et al, *Journal of glaciology*, 1980, 26(94), p.165-177, 15 refs., In English with French and German summaries.
Bakkehöi, S.
Avalanche tracks, Avalanche formation, Avalanche mechanics, Distribution, Topographic features, Analysis (mathematics).

35-2360
Seismic and impact-pressure monitoring of flowing avalanches.
Schaerer, P.A., et al, *Journal of glaciology*, 1980, 26(94), p.179-187, 8 refs., In English with French and German summaries.
Salway, A.A.
Avalanche mechanics, Impact strength, Pressure, Avalanche deposits, Flow measurement, Seismic surveys.

35-2361
Scale modeling of snow-avalanche impact on structures.
Lang, T.E., et al, *Journal of glaciology*, 1980, 26(94), p.189-196, 6 refs., In English with French and German summaries.
Dent, D.
Avalanche mechanics, Impact strength, Structures, Loads (forces), Forecasting, Models, Fluid flow, Computer applications.

35-2362
Two-parameter model of snow-avalanche motion.
Perla, R., et al, *Journal of glaciology*, 1980, 26(94), p.197-207, 9 refs., In English with French and German summaries.
Cheng, T.T., McClung, D.M.
Avalanche mechanics, Friction, Mass flow, Distribution, Mathematical models.

35-2363
Acoustic emission response of snow.
St. Lawrence, W.F., *Journal of glaciology*, 1980, 26(94), MP 1366, p.209-216, 10 refs., In English with French and German summaries.
Snow acoustics, Avalanche triggering, Avalanche formation, Stress strain diagrams, Rheology, Ultrasonic tests, Mathematical models.
In this work a model of the ultrasonic acoustic emission response in snow is developed. The model derived considers the acoustic emission response in snow as a function of stress and strain. It is suggested that the acoustic emission activity in snow is a quantitative indication of the creep rupture taking place in the material. The governing differential equation is developed; an example is then presented that considers the applicability of this equation to the release of certain types of avalanche.

35-2364
Statistical models of snow strength.
Sommerfeld, R.A., *Journal of glaciology*, 1980, 26(94), p.217-223, 16 refs., In English with French and German summaries.
Snow strength, Stresses, Snow density, Snow cover structure, Thermodynamics, Statistical analysis, Models.

35-2365
Snow stratigraphy and water equivalence measured with an active micro-wave system.
Ellerbruch, D.A., et al, *Journal of glaciology*, 1980, 26(94), p.225-233, 12 refs., In English with French and German summaries.
Boyne, H.S.
Snow stratigraphy, Snow water equivalent, Microwaves, Electromagnetic properties, Snow depth, Snow density, Snow hardness.

35-2366
Propagation of stress waves in alpine snow.
Brown, R.L., *Journal of glaciology*, 1980, 26(94), MP 1367, p.235-243, 8 refs., In English with French and German summaries.
Stresses, Shock waves, Snow density, Wave propagation, Snow physics, Pressure, Analysis (mathematics), Alpine landscapes.
The propagation of pressure waves in low-density snow is investigated analytically to determine the variation of wave pressure and wave speed with density and frequency. The results show that, for pressure waves that produce finite volumetric deformations, both pressure jump across the wave and wave-speed increase with initial density and final density. The pressure jump was also found to increase with the wave frequency if other parameters were held constant, although the dependence on frequency is not as strong as the dependence on the initial and final densities. The relationship between pressure jump and frequency implies that high-frequency waves would tend to dissipate more quickly than lower-frequency waves, although like pressure, the attenuation rate would not be strongly frequency dependent.

35-2367
Model for snow-slab failure under conditions of dynamic loading.
Johnson, J.B., *Journal of glaciology*, 1980, 26(94), p.245-254, 25 refs., In English with French and German summaries.
Snow strength, Dynamic loads, Snow cover, Stresses, Wave propagation, Shear stress, Crack propagation, Anisotropy.

35-2368
Tensile strain and fracture of snow.
Watanabe, Z., *Journal of glaciology*, 1980, 26(94), p.255-262, 2 refs., In English with French and German summaries.
Snow strength, Tensile properties, Cracking (fracturing), Strain tests, Snow creep, Stresses, Snow temperature.

35-2369
Viscosity and heat transfer in fluidized snow.
Maeno, N., et al, *Journal of glaciology*, 1980, 26(94), p.263-274, 15 refs., In English with French and German summaries.
Nishimura, K., Kaneda, Y.
Snow physics, Snow thermal properties, Viscosity, Wind velocity, Wind tunnels, Fluidizing.

35-2370
Mechanical behaviour and structure of snow under uniaxial tensile stress.
Narita, H., *Journal of glaciology*, 1980, 26(94), p.275-282, 6 refs., In English with French and German summaries.
Snow mechanics, Snow cover structure, Tensile properties, Stresses, Strain tests, Snow density, Cracking (fracturing).

35-2371
Analysis of compressive strain in adjacent temperature-gradient and equi-temperature layers in a natural snow cover.
Armstrong, R.L., *Journal of glaciology*, 1980, 26(94), p.283-289, 11 refs., In English with French and German summaries.
Strain tests, Snow compression, Snow density, Temperature gradients, Snow crystal structure, Metamorphism (snow), Snow cover, Compressive properties.

35-2372
Thermodynamics of snow metamorphism due to variations in curvature.
Colbeck, S.C., *Journal of glaciology*, 1980, 26(94), MP 1368, p.291-301, 28 refs., In English with French and German summaries.
Metamorphism (snow), Thermodynamics, Snow thermal properties, Heat transfer, Vapor diffusion, Temperature gradients, Analysis (mathematics), Wet snow, Curvature.
In the absence of imposed temperature gradients, the metamorphism of dry snow is dominated by the slow process of vapor diffusion between surfaces of different radii of curvature. This process is so slow in a seasonal snow cover (where temperatures normally change on the scale of hours or days) that vapor migration is usually dominated by the imposed temperature gradient. Thus radius of curvature contributes to but does not control metamorphism except for short periods in very fresh snow. As opposed to dry snow, liquid-saturated snow (i.e. pore space filled by the melt) is metamorphosed by heat flow arising from relatively large temperature differences among the particles. Grain growth in liquid-saturated snow is rapid because of the large temperature differences at nearly constant liquid pressure. In wet snow with low liquid content (2-5% by volume), grain growth is dominated by vapor diffusion (as in dry snow) so grain growth is much slower than under conditions of liquid saturation.

35-2373
Experimental study of temperature-gradient metamorphism.
Marbouty, D., *Journal of glaciology*, 1980, 26(94), p.303-312, 6 refs., In English with French and German summaries.
Metamorphism (snow), Temperature gradients, Snow crystal growth, Depth hoar, Experimentation.

35-2374
History and actual state of legalization of avalanche zoning in Switzerland.
Frutiger, H., *Journal of glaciology*, 1980, 26(94), p.313-324, 22 refs., In English with French and German summaries.
Avalanche formation, Legislation, Safety, Switzerland.

35-2375
Avalanche zoning in France—regulation and technical bases.
Crécy, L. de, *Journal of glaciology*, 1980, 26(94), p.325-330, 12 refs., In English with French and German summaries.
Avalanche formation, Legislation, Safety, Photointerpretation, Mapping, France.

35-2376
Natural-hazard maps for land-use planning in Norway.
Hestnes, E., et al, *Journal of glaciology*, 1980, 26(94), p.331-343, 24 refs., In English with French and German summaries.
Lied, K.
Avalanche formation, Landslides, Safety, Mapping, Norway.

35-2377
Snow-avalanche hazard zoning in British Columbia, Canada.
Freer, G.L., et al, *Journal of glaciology*, 1980, 26(94), p.345-354, 11 refs., In English with French and German summaries.
Schaerer, P.A.
Avalanche formation, Legislation, Safety, Canada—British Columbia.

35-2378
Municipal avalanche zoning: contrasting policies of four western United States communities.
Mears, A.I., *Journal of glaciology*, 1980, 26(94), p.355-362, 12 refs., In English with French and German summaries.
Avalanche formation, Safety, Legislation, Mapping.

35-2379
Avalanche hazard mapping and zoning problems in the Rocky Mountains, with examples from Colorado, U.S.A.
Ives, J.D., et al, *Journal of glaciology*, 1980, 26(94), p.363-375, 38 refs., In English with French and German summaries.
Plam, M.
Avalanche formation, Mapping, Safety, Legislation, Landslides, United States—Rocky Mountains.

35-2380
Avalanche zoning in Alaska, U.S.A.
Hackett, S.W., et al, *Journal of glaciology*, 1980, 26(94), p.377-392, 27 refs., In English with French and German summaries.
Santeford, H.S.
Avalanche formation, Avalanche forecasting, Safety, Legislation, Mountains, Climatic factors, United States—Alaska.

35-2381
Drifting-snow similitude—transport-rate and roughness modeling.
Iversen, J.D., *Journal of glaciology*, 1980, 26(94), p.393-403, 29 refs., In English with French and German summaries.
Snowdrifts, Wind tunnels, Wind velocity, Snowstorms, Mathematical models, Boundary layer, Experimentation.

35-2382
Geometry and density of drifts formed by snow fences.
Tabler, R.D., *Journal of glaciology*, 1980, 26(94), p.405-419, 22 refs., In English with French and German summaries.
Snowdrifts, Snow fences, Snow density, Surface properties, Snow surface, Snow water equivalent, Snow depth, Wind factors.

35-2383
Self-similarity of wind profiles in blowing snow allows outdoor modeling.
Tabler, R.D., *Journal of glaciology*, 1980, 26(94), p.421-434, 28 refs., In English with French and German summaries.
Blowing snow, Snowdrifts, Snow fences, Snow accumulation, Wind factors, Surface properties, Models.

35-2384
Research on prevention of snow-drifts by blower fences.
Zhonglong, W., et al, *Journal of glaciology*, 1980, 26(94), p.435-445, 3 refs., In English with French and German summaries.
Yuan, C.
Snowdrifts, Countermeasures, Snow fences, Topographic features, Design, Analysis (mathematics), Roads.

35-2385
Slip-velocity hypothesis applied to hydraulically smooth wind flow over a snow cover.
Bergen, J.D., *Journal of glaciology*, 1980, 26(94), p.447-452, 8 refs., In English with French and German summaries.
Snow surface, Wind velocity, Laminar flow, Boundary layer, Surface properties, Shear stress, Porosity.

35-2386
Threshold wind-speeds and elastic impact in snow transport.
Schmidt, R.A., *Journal of glaciology*, 1980, 26(94), p.453-467, 30 refs., In English with French and German summaries.
Snowdrifts, Wind velocity, Snow surface, Particles, Impact strength, Cohesion, Sintering, Temperature effects, Analysis (mathematics).

35-2387
Snow transport over mountain crests.
Föhn, P.M.B., *Journal of glaciology*, 1980, 26(94), p.469-480, 13 refs., In English with French and German summaries.
Snowdrifts, Snow mechanics, Blowing snow, Wind velocity, Surface roughness, Snow surface, Mountains.

35-2388
Vertical profile and horizontal increase of drift-snow transport.
Takeuchi, M., *Journal of glaciology*, 1980, 26(94), p.481-492, 7 refs., In English with French and German summaries.
Snowdrifts, Snow mechanics, Wind velocity, Blowing snow, Profiles, Analysis (mathematics).

35-2389
Observations of ground avalanches with a video tape recorder (VTR).
Akitaya, E., *Journal of glaciology*, 1980, 26(94), p.493-496, 2 refs., In English with French and German summaries.
Avalanche formation, Friction, Avalanche mechanics, Snow mechanics, Recording instruments.

35-2390
Informal cooperative state-federal avalanche-warning system and public education program for south-central Alaska, U.S.A.
Hackett, S.W., et al, *Journal of glaciology*, 1980, 26(94), p.497-500, In English with French and German summaries.
Fesler, D.
Avalanche formation, Safety, Legislation, Education, Accidents.

35-2391
Energy-line method in the mechanics of avalanches.
Körner, H.J., *Journal of glaciology*, 1980, 26(94), p.501-505, 9 refs., In English with French and German summaries.
Avalanche mechanics, Avalanche formation, Avalanche tracks, Velocity, Profiles, Slope orientation, Hydraulics.

35-2392
Snow-pack structure: stability analyzed by pattern-recognition techniques.
LaChapelle, E.R., et al, *Journal of glaciology*, 1980, 26(94), p.506-511, 6 refs., In English with French and German summaries.
Ferguson, S.A.
Snow cover structure, Profiles, Snow cover stability, Shear properties, Avalanche forecasting.

35-2393
Avalanches of December 1966 in western T'ien-Shan, China.
Qui, J., et al, *Journal of glaciology*, 1980, 26(94), p.512-514, 5 refs., In English with French and German summaries.
Hu, R.
Avalanche formation, Avalanche deposits, Climatic factors, Damage, China.

35-2394
Glacial history of the Kirgiz Ala Tau Range. [Lednikovoe proshloe khrebta Kirgizskiĭ Alatau],
Maksimov, E.V., Leningrad, Universitet, 1980, 184p. (pertinent p.116-143), In Russian with English table of contents enclosed. Refs. p.180-183.
Glaciation, Rock glaciers, Moraines, Glacier surfaces, Glacier tongues, Glacier flow, Glacier oscillation, USSR—Ala Tau.

35-2395
Scheme for a generalized method of integral correlations for multivariate single phase Stefan problems and its applications. [Skhema obobshchennogo metoda integral'nykh sootnosheniĭ dlia mnogomernykh odnofaznykh zadach Stefana i ee primeneniia],
Grigor'ev, S.G., et al, Prikladnye zadachi teoreticheskoĭ i matematicheskoĭ fiziki (Applied problems of theoretical and mathematical physics) edited by N.A. Avdonin, Riga, Latviĭskiĭ gosudarstvennyĭ universitet, 1980, p.43-52, In Russian. 3 refs.
Kosolapov, V.N., Pudovkin, M.A., Chugunov, V.A.
Stefan problem, Mining, Artificial freezing, Ablation, Cold weather construction, Permafrost beneath structures, Heat transfer.

35-2396
Strength of materials and structural elements under extreme conditions. Vol. II. [Prochnost' materialov i elementov konstruktsiĭ v ekstremal'nykh usloviiakh. Tom 2.],
Pisarenko, G.S., et al, Kiev, Naukova dumka, 1980, 771p., In Russian with abridged English table of contents enclosed. 772 refs.
Construction materials, Metals, Steel structures, Thermal stresses, Frost resistance, Thermal insulation, Deformation, Low temperature tests, Test equipment, Laboratory techniques.

35-2397
Development principles of the polygonal-wedge microrelief.
Romanovskiĭ, N.N., *Moscow University geology bulletin*, 1974, 29(5), p.67-78, Translated from Vestnik Moskovskogo universiteta. Geologiia. 18 refs.
Periglacial processes, Polygonal topography, Microrelief, Frost action, Cracking (fracturing), Ice wedges.

35-2398
Possibilities of distinguishing weak resistivity anomalies against a background of noise in permafrost surveys.
Il'ina, E.B., *Moscow University geology bulletin*, 1974, 29(6), p.86-88, Translated from Vestnik Moskovskogo universiteta. Geologiia. For Russian original see 29-3781. 4 refs.
Electrical prospecting, Permafrost structure, Permafrost physics, Ground ice, Frozen rock temperature.

35-2399
Self-simulating solution of the problem of freezing (thawing) in the case of a change of the surface level with time.
Melamed, V.G., et al, *Moscow University geology bulletin*, 1975, 30(1), p.52-62, Translated from Vestnik Moskovskogo universiteta. Geologiia. For Russian original see 30-327. 5 refs.
Medvedev, A.V.
Stefan problem, Soil freezing, Ground thawing, Ground water, Phase transformations, Frost penetration.

35-2400
Periglacial formations of the northern part of the Yenisey Ridge and western part of the Siberian platform.
Vorob'ev, I.V., et al, *Moscow University geology bulletin*, 1975, 30(5), p.42-48, Translated from Vestnik Moskovskogo universiteta. Geologiia. For Russian original see 30-3966. 16 refs.
Gorshkov, S.P.
Periglacial processes, Cryogenic structures, Slope processes, USSR—Yeniseyskiy Kryazh Ridge.

35-2401
Composition and properties of Upper Pleistocene deposits of the Yana-Indigirka coastal lowland.
Trush, N.I., et al, *Moscow University geology bulletin*, 1975, 30(5), p.59-69, Translated from Vestnik Moskovskogo universiteta. Geologiia. For Russian original see 30-3967. 7 refs.
Kondrat'eva, K.A.
Plains, Permafrost structure, Shores, Clays, Unfrozen water content, Ground ice, Thermokarst, Permafrost weathering.

35-2402
Effect of engineering works on the development of cryopedologic processes.
Garagulia, L.S., et al, *Moscow University geology bulletin*, 1975, 30(5), p.70-80, Translated from Vestnik Moskovskogo universiteta. Geologiia. For Russian original see 30-3192. 3 refs.
Gordeeva, G.I., Poltev, N.F.
Pipelines, Roads, Permafrost beneath structures, Thermokarst, Soil freezing, Frozen ground physics, Thermal regime, Vegetation factors.

35-2403
Temperature regime and seasonal thawing of perennially frozen rocks in the territory of the coastal lowlands of Yakut ASSR.
Zaĭtsev, V.N., *Moscow University geology bulletin*, 1975, 30(5), p.99-104, Translated from Vestnik Moskovskogo universiteta. Geologiia. For Russian original see 30-3193. 10 refs.
Shores, Plains, Permafrost heat balance, Thermal regime, Active layer, Vegetation patterns, USSR—Yakutia.

35-2404
Microstructure of frozen clay rocks when cooled from -5 to -50 C (according to the electron microscopy data).
Shusherina, E.P., et al, *Moscow University geology bulletin*, 1975, 30(6), p.84-86, Translated from Vestnik Moskovskogo universiteta. Geologiia. For Russian original see 30-3399. 5 refs.
Rogov, V.V., Zabolotskaia, M.I.
Frozen fines, Clay soils, Cooling rate, Microstructure, Microscopy.

35-2405
Experimental study of moisture migration and ice release in the frozen zone of thawing soils.
Ershov, E.D., et al, *Moscow University geology bulletin*, 1976, 31(1), p.89-91, Translated from Vestnik Moskovskogo universiteta. Geologiia. For Russian original see 31-1575.
Cheverev, V.G., Lebedenko, IU.P
Active layer, Soil freezing, Frost penetration, Cryogenic structures, Soil water migration, Ice formation, Ground ice, Ground thawing.

35-2406
Influence of freeze drying on the strength of frozen clays of various mineral compositions.
Vrachev, V.V., *Moscow University geology bulletin*, 1976, 31(3), p.72-75, Translated from Vestnik Moskovskogo universiteta. Geologiia. For Russian original see 31-1425. 7 refs.
Frozen fines, Clays, Clay minerals, Desiccation, Bearing strength.

35-2407
Effect of pore solution concentration and organic matter content on the thixotropic stabilization of clays.
Kozhobaev, K.A., *Moscow University geology bulletin*, 1976, 31(4), p.92-94. Translated from Vestnik Moskovskogo universiteta, Geologiia. For Russian original see 31-918. 6 refs.
Soil stabilization, Clays, Thixotropy, Porosity, Solutions, Soil strength, Water chemistry, Organic matter content.

35-2408
Vegetation and forest dynamics of the upper Dietrich River Valley, Alaska.
Densmore, D., Raleigh, North Carolina State University, 1980. p.183p., M.S. thesis. Refs. p.161-171.
Vegetation, Tundra, Taiga, Forest lines, Topographic effects, Classifications, Frost action, Soil freezing, Climatic factors, Growth, Human factors, Glacial geology, Survival.

35-2409
Scattering and absorption by thin flat aerosols.
Weil, H., et al, *Applied optics*, June 15, 1980, 19(12), p.2066-2071, 11 refs.
Chum C.M.
Aerosols, Ice crystals, Ice optics, Light scattering, Absorption, Polarization (waves), Analysis (mathematics).

35-2410
Multiple scattering of electromagnetic waves by random distributions of discrete scatterers with coherent potential and quantum mechanical formulism.
Tsang, L., et al, *Journal of applied physics*, July 1980, 51(7), p.3465-3485, 38 refs.
Kong, J.A.
Electromagnetic prospecting, Remote sensing, Microwaves, Snow water content, Soil water, Scattering, Analysis (mathematics).

35-2411
Independent roof sections for long buildings to resist snow loads.
Woeste, F.E., et al, *American Society of Agricultural Engineers. Transactions*, July-Aug. 1980, 23(4), p.968-972, 6 refs.
Hughes, H.A., Suddarth, K.
Snow loads, Roofs, Construction, Design, Analysis (mathematics), Buildings.

35-2412
Ice depolarization statistics for 19-GHz satellite-to-earth propagation.
Arnold, H.W., et al, *IEEE transactions on antennas and propagation*, July 1980, AP-28(4), p.546-550, 22 refs.
Cox, D.C., Hoffman, H.H., Leck, R.P.
Ice crystal structure, Polarization (waves), Attenuation, Statistical analysis, Spacecraft, Rain.

35-2413
11- and 18-GHz radio wave attenuation due to precipitation on a slant path.
Akeyama, A., et al, *IEEE transactions on antennas and propagation*, July 1980, AP-28(4), p.580-585, 8 refs.
Morita, K., Inoue, T., Kikushima, M., Sasaki, O.
Radio waves, Snow physics, Attenuation, Rain.

35-2414
Constitutive relation for the deformation of snow.
St. Lawrence, W.F., et al, *Cold regions science and technology*, Jan. 1981, 4(1), MP 1370, p.3-14, 16 refs.
Lang, T.E.
Snow deformation, Snow cover structure, Stress strain diagrams, Snow compression, Velocity, Snow acoustics, Analysis (mathematics).
In this paper a constitutive equation which describes the uniaxial deformation of snow is developed. The basic assumption underlying this work is that the stress-strain response can be derived by considering the structure of the material. The equation which describes the plastic portion of the deformation is developed by considering the relationship between three fundamental variables the mean spacing between ice grains, the relatative velocity between grains, and the fraction of the total number of grains which participate in the deformation process. The mean distance between ice grains is determined by a stereological investigation of the snow structure, and the velocity component is found by empirically characterizing the relaxation of the snow. To determine the mobility of the ice grains acoustic emission data are used. An equation describing the pattern of acoustic emissions for constant rates of deformation is derived and applied to a number of tests. Combining the above variables produces a compressive and tensile constitutive equation which reflects the behavior of the snow under both uniaxial deformations.

35-2415
Influence of electro-freezing on ice formation on high-voltage DC transmission lines.
Phan, C.L., et al, *Cold regions science and technology*, Jan. 1981, 4(1), p.15-25, 22 refs.
Laforte, J.L.
Transmission lines, Power line icing, Ice formation, Ice accretion, Electric fields, Ice density, Cold chambers, Drops (liquids).

35-2416
Time-related changes in snow chemistry—Ross Ice Shelf, Antarctica.
Warburton, J.A., et al, *Cold regions science and technology*, Jan. 1981, 4(1), p.27-39, 17 refs.
Molenar, J.V., Cornish, C.R., Owens, M.S., Young, L.G.
Snow composition, Chemical analysis, Snow impurities, Boundary layer, Profiles, Wind factors, Time factor, Shear stress, Antarctica—Ross Ice Shelf.
Snow from seven two-meter deep pits on the Ross Ice Shelf has been analysed for Na, Mg, Ca and K. The changes in concentration for all four elements were found to be coincident in depth at any one site. When concentrations are highest, elemental ratios are close to seawater values. The present interpretation is that the variations in chemical concentrations are caused by meteorological events (storms) large enough to influence substantial geographical areas simultaneously. The trajectories of these storms across southern oceans suggest the sea surface as the principal source of chemical impurities observed in the snow over wide areas of the Shelf. The results obtained lead to the development of a hypothesis that the shearing stress conditions in the boundary layer in proximity to the Ross ice Shelf have a strong influence on the concentrations and ratios of chemical components in the snow on the Shelf. (Auth. mod.)

35-2417
Cyclic loading and fatigue in ice.
Mellor, M., et al, *Cold regions science and technology*, Jan. 1981, 4(1), MP 1371, p.41-53, 4 refs.
Cole, D.
Ice crystals, Dynamic loads, Ice strength, Stress strain diagrams, Fatigue (materials), Ice creep, Time factor.
Isotropic polycrystalline ice was subjected to cyclic loading in uniaxial compression at -5C, with stress limits 0-2 and 0-3 MPa, and frequencies in the range 0.043 to 0.5 Hz. Stress-strain records showed hysteresis loops progressing along the strain axis at non-uniform rates. The effective secant modulus, which was about half the true Young's modulus, decreased during the course of a test. The elastic strain amplitude and the energy dissipated during a loading cycle both increased with increase of time and plastic strain. Strain-time records gave mean curves which were identical in form to classical constant stress creep curves, with a small cyclic alternation of recoverable strain about the mean curve. The results of the tests suggest that maximum resistance under compressive cyclic loading occurs at an axial plastic strain of about 1%, which is essentially the same as the failure strain for ductile yielding under constant stress and under constant strain-rate.

35-2418
Hydrodynamic effects on iceberg gouging.
Lopez, R., et al, *Cold regions science and technology*, Jan. 1981, 4(1), p.55-61, 4 refs.
Chari, T.R., Moore, E., Peters, G.R., Zielinski, A.
Icebergs, Ice scoring, Ice friction, Ocean bottom, Hydrodynamics, Analysis (mathematics).

35-2419
Seismic evidence for an extensive gas-bearing layer at shallow depth, offshore from Prudhoe Bay, Alaska.
Boucher, G., et al, *Cold regions science and technology*, Jan. 1981, 4(1), p.63-71, 13 refs.
Reimnitz, E., Kempema, E.
Natural gas, Natural resources, Seismic prospecting, Ocean bottom, United States—Alaska—Prudhoe Bay.

35-2420
Cold Regions Science and Technology Bibliography.
Cummings, N.H., *Cold regions science and technology*, Jan. 1981, 4(1), MP 1372, p.73-75.
Bibliographies, Glaciology, Permafrost, Hydrology, Engineering geology, Meteorology.

35-2421
Physics and mechanics of ice.
Tryde, P., *Naturwissenschaften*, Nov. 1980, 67(11), p.556-559, 25 refs. Condensed review of a paper presented at a symposium arranged by the International Union of Theoretical and Applied Mechanics, Copenhagen, Aug. 1979.
Ice physics, Ice mechanics, Ice crystal structure, Ice creep, Ice cracks, Stress strain diagrams.

35-2422
Icebergs threaten offshore oil industry. (Les icebergs, menace du pétrole offshore),
Goblot, R., *Geos*, Fall 1977, p.9-11, In French.
Offshore structures, Petroleum industry, Icebergs, Drift, Countermeasures.

35-2423
Experimental technique to study the effect of size on ice nucleations.
Prodi, F., et al, *Journal of applied meteorology*, Dec. 1980, 19(12), p.1448-1450, 9 refs.
Santachiara, G., Prodi, V., De Zaiacomo, T.
Particle size distribution, Laboratory techniques.

35-2424
Thermokarst in Arctic regions of the USSR and abroad. (Termokarst v sovetskoĭ i zarubezhnoĭ Arktike),
Belorusova, Zh.M., *Leningrad. Gosudarstvennyĭ pedagogicheskiĭ institut. Gertsenovskie chteniia*, 1972, Vol.25, p.41-43, In Russian.
Polar regions, Permafrost distribution, Permafrost hydrology, Thermokarst, Alassy, Ground ice, Ice formation, Permafrost structure.

35-2425
Trends in ice cover development in the Arctic Basin. (O tendentsii v razvitii lednikovogo pokrova Arkticheskogo Basseĭna),
Vasil'ev, S.V., *Leningrad. Gosudarstvennyĭ pedagogicheskiĭ institut. Gertsenovskie chteniia*, 1972, Vol.25, p.69-70, In Russian.
Arctic landscapes, Glaciation, Ice cover thickness, Glacier ablation, Glacier alimentation, Snow cover distribution, USSR—Franz Josef Land, Norway—Spitsbergen.

35-2426
Influence of dispersed glass fiber on physico-mechanical properties of gypsum-containing matrices. (Vliianie dispergirovannogo steklovolokna na fiziko-mekhanicheskie svoĭstva gipsoderzhashcheĭ matritsy),
Ekibaeva, A.A., et al, Konstruktsii i materialy v stroitel'stve. Voprosy stroitel'stva 8 (Construction materials and structures. Construction problems 8) edited by P.P. Linart, L.A. Lozitskaia, A.V. Putans and G.S. Kobrinskiĭ. Riga, Avots, 1980, p.134-142, In Russian. 5 refs.
Gorin, A.B., Girsh, E.V.
Reinforced concretes, Construction materials, Concretes, Freeze thaw cycles, Fiber composites, Frost resistance, Concrete strength.

35-2427
Method of objective determination of aircraft icing zones according to aerological data. (K voprosu o sposobe ob"ektivnogo vydeleniia zon obledeneniia samoletov po aerologicheskim dannym),
Abramovich, K.G., et al, *Leningrad. Gidrometeorologicheskiĭ nauchno-issledovatel'skiĭ tsentr Trudy*, 1980, Vol.235, p.75-85, In Russian. 11 refs.
Gorlach, I.A.
Aircraft icing, Meteorological data, Meteorological charts.

35-2428
Research results of GDR scientists in Antarctica (1959-1979). (Forschungsergebnisse von DDR-Wissenschaftlern der Antarktis (1949-1979)),
German Democratic Republic. Nationalkomitee für Geodäsie und Geophysik, *Geodätische und geophysikalische Veroffentlichungen*, 1980, Ser.I(7), 196p., In German. For individual papers see 35-2429 through 35-2438, or A-24496, B-24511, C-24498, C-24499, C-24502, E-24497, E-24503, F-24507, F-24512, H-24508 through H-24510, I-24504, I-24505, K-24506, L-24500 and L-24501.
Research projects, Polar regions.
Contains papers presented at a colloquium held in Matzlow-Garwitz in May 1979, reporting on results achieved in 20 years of antarctic research in the fields of geology, geodesy, gravimetry, meteorology, physiology, and others.

35-2429
Two decades of research by earth scientists of the German Democratic Republic during expeditions. (Zwei Jahrzehnte Forschungsarbeiten der Geowissenschaftler der DDR auf Expeditionen),
Peschel, H., *Geodätische und geophysikalische Veroffentlichungen*, 1980, Ser.I No.9, p.14-19, In German.
Research projects, Polar regions.
A review is presented of the lineage of German polar research with identifying landmarks along the way, the roles of the GDR and other socialist countries are emphasized. International aspects of the GDR scientific research effort are participation in United Nations programs and the IGY, especially the regional IGY meeting in Moscow. The various earth science disciplines are enumerated and the close cooperation with the USSR during five voyages of a soviet research vessel and in soviet expeditions are highlighted, particularly those to the Tien Shan and to the Antarctic under the auspices of the Soviet Arctic and Antarctic Institute. Various other international contacts, as international committees and symposia, are also mentioned.

35-2430
Methodological aspects of the geological investigation of the subglacial relief demonstrated by the example of the Hays Glacier. (Methodische Aspekte der geologischen Erkundung des Subglazials am Beispiel des Hays Gletschers),
Dietrich, H., *Geodätische und geophysikalische Veröffentlichungen*, 1980, Ser.1 No.9, p.20-24, In German., In German with English summary. 10 refs.
Glacial geology, Subglacial observations, Antarctica—Hays Glacier.
During the 17th SAE, drift pebbles were collected in the oasis Gora Vechernyaya 12 km east of Molodezhnaya. Among them pebbles of chlorite-gneiss and basalt were found which are not known from the rock formations outcropping in that area. Their origins were traced from the subglacial relief below the ice cap of Molodezhnaya and of the Hays Glacier, taking into account the subglacial relief and the dynamics of the ice as well as geological considerations. Two major potential areas of origin were identified. (Auth.)

35-2431
Geodetic and glaciological activities in East Antarctica, 1962-1978. (Geodätisch-glaziologische Arbeiten in der Ostantarktis (1962-1978)),
Meier, S., *Geodätische und geophysikalische Veröffentlichungen*, 1980, Ser.1 No.9, p.24-31, In German., In German with English summary. 10 refs.
Geodetic surveys, Glacier surveys, Ice sheets, Ice mechanics, Antarctica—East Antarctica.
Repeated geodetic triangulations were carried out by GDR scientists between 1962 and 1965 in the Mirnyy area to derive horizontal and vertical ice movements. The feeding area of the Helen Glacier could reliably be delimited and the mass balance calculated. Repeated geodetic measurements of single reference points were carried out during the 10th, 17th, 21st and 23rd SAE over the eastern part of the Molodezhnaya ice cap. A complex program of geodetic-geographical-glaciological investigations was carried out at Hays Glacier in 1972, 1975/76 and 1977/78. From these measurements the geometry, movement, temperature distribution and parameters of the equation of flow could be determined and the loss of mass due to calving be estimated. Geodetic-astronomical first order position measurements were carried out in 1964 and 1972 at Vostok resulting in the first reliable determination of the velocity of inland ice movement in East Antarctica. (Auth. mod.)

35-2432
Repetitive geodetic-glaciological measurements of Hays Glacier, 1977/78. (Geodätisch-glaziologische Wiederholungsmessungen am Hays Gletscher 1977/78),
Hoyer, R., *Geodätische und geophysikalische Veröffentlichungen*, 1980, Ser.1 No.9, p.32-35, In German., In German with English summary. 3 refs.
Geodetic surveys, Glacier surveys.
During the 1977/78 summer of the 23rd SAE GDR scientists carried out measurements at the Hays Glacier, Enderby Land, East Antarctica. Besides the 3rd measurement along part of a traverse the program included the first repeated measurement south of 40 km from the coast. The results showed that the Hays Glacier behaves differently from previous assumptions. This applies to the course of the streamline, the velocity of the ice movement and the size of the catchment area. The total length of the glacier and its catchment area could reliably be estimated (200-250 km and about 10,000 sq km). (Auth.)

35-2433
Vertical earth crustal movements and variations in gravity potential related to changing ice load. (Vertikale Erdkrustenbewegungen und Potentialänderungen bei wechselnden Eis-Auflasten),
Dietrich, R., *Geodätische und geophysikalische Veröffentlichungen*, 1980, Ser.1 No.9, p.47-51, In German with English summary. 6 refs.
Earth crust, Gravity, Ice loads.
Based on existing geophysical model conceptions the elastic response of the earth crust subjected to changing load is considered. It is calculated that regional ice mass variations within the catchment basins of some antarctic outlet glaciers such as Hays, Lambert, and Helen Glaciers could have a measurable effect on local vertical crustal movements and gravity potential. Their size depends on the degree of recent and past changes of ice mass, the extent of the glacier and the distance of the points of measurement from the glacier. In case of respective changes of the mass balance even for smaller antarctic glaciers annual vertical crustal movements in the order of millimeters or centimeters could be expected corresponding to level changes of several meters over the whole outflow cycle. (Auth. mod.)

35-2434
Geodetic-astronomical activities during the 8th and 17th SAE. (Geodätisch-astronomische Arbeiten während der 8. und 17. SAE),
Liebert, J., *Geodätische und geophysikalische Veröffentlichungen*, 1980, Ser.1 No.9, p.51-53, In German., In German with English summary. 1 ref.
Geodetic surveys, Ice sheets.
Geodetic-astronomical position measurements were carried out by GDR scientists in 1963/64 (8th SAE) and 1971/72 (17th SAE) at Vostok as part of a geodetic-glaciological program studying the dynamics of the antarctic ice shield. Despite adverse conditions (necessity of day time observations, lack of good earthing and therefore extremely difficult time signal reception and time keeping, harsh climate, methodological problems of respective observations at near-polar positions) the total change in position during this 8 year period could be determined with rather high accuracy (29.3 m to the south, 38 deg east). Principles and efficiency of future satellite-based Doppler position measurements are briefly outlined. (Auth.)

35-2435
Meteorological processes in the antarctic atmosphere. (Meteorologische Prozesse in der antarktischen Atmosphäre),
Helbig, A., *Geodätische und geophysikalische Veröffentlichungen*, 1980, Ser.1 No.9, p.64-79, In German., In German with English summary. 40 refs.
Climate, Atmospheric circulation, Heat transfer, Ice sheets, Boundary layer, Antarctica.
The energy exchange between the tropics and the polar regions takes place in the system of general circulation of the atmosphere. Modifications in this system cause displacements of the present position of climatic zones. Therefore the study of the energy balance and dynamics of the atmosphere in polar regions is of particular importance. The meteorological processes in Antarctica are characterized by the interaction between atmosphere and ice sheet. This is most clearly reflected by the atmospheric boundary layer. Starting from the radiation balance, the coupling between the temperature and the wind field, especially in the antarctic slope region, is discussed and the manifold connections to other processes are outlined. (Auth.)

35-2436
Weather satellite observations in the South Polar region. (Wettersatellitenbeobachtungen im Südpolargebiet),
Gernandt, H., *Geodätische und geophysikalische Veröffentlichungen*, 1980, Ser.1 No.9, p.79-95, In German., In German with English summary. 8 refs.
Spacecraft, Weather observations, Sea ice, Photointerpretation.
A GDR built weather satellite ground receiving station of type WES-1 was installed in Antarctica in 1969 at Mirnyy. It monitored continuously for two winters the area between 40 and 120 E and 40 and 75 S. Since 1975 (21st SAE) another station of this type has been in permanent operation at the GDR research base near Novolazarevskaya. It receives weather pictures of the polar-orbiting satellites METEOR 2-2 and NOAA 3, 4 and 5 covering the area between 40 E and 70 W (Enderby Land, Filchner Ice Shelf, Antarctic Peninsula). The data collected were used for ice reconnaissance in this area and the monitoring of large-scale ice movements and variations. Further evaluation of these data provides contributions to the GARP Polar Sub-Programme activities. (Auth.)

35-2437
Research on environmental nuclides in Antarctica. (Forschungen mit Umweltnukliden in der Antarktis),
Fröhlich, K., et al, *Geodätische und geophysikalische Veröffentlichungen*, 1980, Ser.1 No.9, p.122-144, In German., In German with English summary. 17 refs.
Schütze, H.
Ice sheets, Chemical analysis, Isotope analysis, Radioactive isotopes.
The report deals with the stable isotopes D and O-18 of water molecules and with some natural radionuclides created in the earth's atmosphere by cosmic rays. Measurements of isotopes and radionuclides in snow, firn and ice samples collected at the surface and in ice samples taken from polar ice caps provide the basis for glaciological and other geoscientific investigations. Data are gained on the accumulation rates of snow, firn and ice, on climate stages in past epochs, on the migration of ice bodies, on the dynamics of the propagation of melted snow within the antarctic oceans, on the development of antarctic lakes and their dynamics, on the global circulation of atmospheric water vapor and CO_2 and other physicochemical processes. First results derived by GDR scientists are presented. (Auth. mod.)

35-2438
Tritium and C-14 investigations in the framework of GDR research in Antarctica. (Tritium- und 14C-Untersuchungen im Rahmen der Antarktisforschung der DDR),
Herbert, D., et al, *Geodätische und geophysikalische Veröffentlichungen*, 1980, Ser.1 No.9, p.187-194, In German with English summary. 7 refs.
Fröhlich, K., Schneider, M.M.
Glacier ice, Chemical analysis, Ice dating.
A multi-stage program of using tritium and C-14 analysis for glaciological studies in Antarctica was undertaken. This program was partially completed by GDR scientists participating in the 21st and 23rd SAE. Along a firn profile of the uppermost 11 m of Hays Glacier, tritium, deuterium and O-18 analyses were carried out in order to determine the mean accumulation rate and temperature trend during recent years. The age of settlement of a penguin breeding colony was determined by means of C-14 analysis of the layer of excrements. (Auth.)

35-2439
Complex natural-meliorative regionalization of the Non-chernozem zone in the Russian Soviet Federated Republic. (Kompleksnoe prirodno-meliorativnoe raionirovanie Nechernozemnoĭ zony RSFSR),
Panov, E.P., et al, Leningrad, Universitet, 1980, 231p., In Russian with abridged English table of contents enclosed. Refs. p.226-229.
Filenko, R.A., Il'inykh, N.I.
Land reclamation, Mapping, Tundra, Taiga, Swamps, Drainage, Steppes, Irrigation, Waste disposal, Water, Environmental protection.

35-2440
Improving the reliability of reservoirs, gas tanks and their equipment. (Povyshenie nadezhnosti rezervuarov, gazgal'derov i ikh oborudovaniia),
Verevkin, S.I., et al, Moscow, Nedra, 1980, 288p., In Russian with abridged English table of contents enclosed. 25 refs.
Rzhavskiĭ, E.L.
Petroleum industry, Oil storage, Reservoirs, Natural gas, Tanks (containers), Steel structures, Liquefied gases, Permafrost beneath structures, Thermal insulation, Swamps, Equipment.

35-2441
Influence of radiative and turbulent heat exchange on the surface layer temperature (Review). (Vliianie luchistogo i turbulentnogo teploobmena na temperaturu prizemnogo sloia atmosfery (Obzor)),
[Akushevskaia, K.E., *Problemy fiziki atmosfery*, 1980, Vol.16, p.79-92, In Russian. 50 refs.
Atmospheric circulation, Air temperature, Temperature inversions, Heat transfer, Radiation, Turbulent exchange, Soil air interface, Radiant cooling.

35-2442
Automatic classification technique of cloud determination against the background of snow landscapes. (O vydelenii oblakov na fone snezhnogo landshafta metodom avtomaticheskoĭ klassifikatsii),
Naidenova, K.A., *Problemy fiziki atmosfery*, 1980, Vol.16, p.163-169, In Russian. 4 refs.
Infrared photography, Snow optics, Clouds (meteorology), Infrared equipment, Spectroscopy.

35-2443
Field manual for soil science (according to natural zones). (Praktikum po polevomu pochvovedeniiu (po prirodnym zonam)),
Khantuleva, A.A., ed, Leningrad, Izd-vo Leningradskogo universiteta, 1980, 148p. (pertinent p.15-38), In Russian with English table of contents enclosed. 29 refs.
Rastvorova, O.G., ed.
Forest soils, Taiga, Swamps, Soil formation, Podsol, Soil profiles.

35-2444
Theories and methods of plant introduction and landscaping. Proceedings of a republican conference, Kiev, 1978. (Teorii i metody introduktsii rasteniĭ i zelenogo stroitel'stva. Materialy Respublikanskoĭ konferentsii, Kiev, 1978),
Grodzinskiĭ, A.M., ed, Kiev, Naukova dumka, 1980, 220p., In Russian. For selected papers see 35-2445 and 35-2446. Refs. passim.
Introduced plants, Trees (plants), Landscape types, Cryogenic soils, Forest soils, Plant ecology, Frost resistance.

35-2445
Selection of methods for determining winter hardiness of introduced plants. (O vybore metodov opredeleniia zimostoĭkosti introdutsentov),
Doroshenko, A.K., Teorii i metody introduktsii rasteniĭ i zelenogo stroitel'stva. Materialy Respublikanskoĭ konferentsii, Kiev, 1978 (Theories and methods of plant introduction and landscaping. Proceedings of a republican conference, Kiev, 1978) edited by A.M. Grodzinskiĭ, Kiev, Naukova dumka, 1980, p.35-37, In Russian. 9 refs.
Introduced plants, Landscape types, Frost resistance.

35-2446
Introduced trees in recreation areas of Novosibirsk. (Ispol'zovanie introdutsentov drevesnykh porod pri formirovanii rekreatsionnykh ob'ektov Novosibirska),
Taran, I.V., Teorii i metody introduktsii rasteniĭ i zelenogo stroitel'stva. Materialy Respublikanskoĭ konferentsii, Kiev, 1978 (Theories and methods of plant introduction and landscaping. Proceedings of a republican conference, Kiev, 1978) edited by A.M. Grodzinskiĭ, Kiev, Naukova dumka, 1980, p.174-176, In Russian.
Cryogenic soils, Introduced plants, Trees (plants), USSR—Novosibirsk.

35-2447
Superpower turbines for Siberia and the Far East. {Sverkhmoshchnye turbiny dlia Sibiri i Dal'nego Vostoka},
Shchegolev, G.S., et al, Leningrad, Mashinostroenie, 1980, 135p., In Russian with English table of contents enclosed. 9 refs.
Babanov, O.S., Slyn'ko, V.S., Kolesnikov, A.P.
Electric power, Turbines, Equipment.

35-2448
Transverse flexure of ice.
Panfilov, D.V., *Soviet physics. Technical physics,* Oct. 1979, 24(10), p.1168-1170, Translated from Zhurnal tekhnicheskoĭ fiziki. 4 refs.
Ice cover strength, Flexural strength, Ice deformation, Analysis (mathematics).

35-2449
Winter dictates its demands. {Zima diktuet svoi trebovaniia},
Lutoshkin, A., *Tyl i snabzhenie sovetskikh vooruzhennykh sil,* Dec 1977, No.12, p 25-29, In Russian
Military operation, Logistics, Tundra, Polar regions, Snowstorms.

35-2450
In defiance of winter conditions. {Zime naperekor},
Titov, A., *Tyl i snabzhenie sovetskikh vooruzhennykh sil,* Dec. 1978, No.12, p.31-35, In Russian
Military operation, Taiga, Mountains, Logistics.

35-2451
Winter maintenance of access roads. {Soderzhanie pod"ezdnykh dorog zimoĭ},
Bulatkin, R., *Tyl i snabzhenie sovetskikh vooruzhennykh sil,* Dec. 1978, No.12, p.78-80, In Russian.
Military operation, Military equipment, Road maintenance, Winter maintenance.

35-2452
From knowledge to know-how. {Ot znaniia k umeniiu},
Petrov, V., *Tyl i snabzhenie sovetskikh vooruzhennykh sil,* Dec. 1978, No.12, p.85-87, In Russian.
Military operation, Military equipment, Cold weather operation.

35-2453
Aeration zone in permafrost of the Pechora coal basin. {O zone aeratsii v merzlykh porodakh (na primere Pechorskogo ugol'nogo basseĭna)},
Oberman, N.G., *Vodnye resursy,* 1980, No.6, p.127-133, In Russian. 16 refs.
Mining, Coal, Permafrost hydrology, Frozen rock temperature, Active layer, Aeration.

35-2454
Shamanovsk reference section of Late Pleistocene and Holocene deposits of the Indigirka area. {Shamanovskiĭ opornyĭ razrez pozdneplеistotsenovykh i golotsenovykh otlozheniĭ Indigirki},
Kaplina, T N , et al, *Akademiia nauk SSSR. Izvestiia. Seriia geologicheskaia,* Sep. 1980, No.9, p.74-81, In Russian. 13 refs.
Shilova, G.N., Pirumova, L.G.
Permafrost structure, Stratigraphy, Ice wedges, Thermokarst, Shores, Pollen, Age determination, USSR—Yakutia, USSR—Indigirka River.

35-2455
Determining the magnitude of force required for layer-by-layer excavation of frozen rocks treated with ultra-high frequency electromagnetic fields. {Opredelenie usiliia posloĭnogo rezaniia merzlykh porod v elektromagnitnom pole SVCh diapazona},
Misnik, IU.M., et al, *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedeniĭ. Gornyĭ zhurnal,* 1980, No.9, p 69-74, In Russian. 9 refs.
Rikenglaz, L.E., Khominskiĭ, V.A.
Mining, Heating, Rock excavation, Stresses, Permafrost, Cutting machines (tools).

35-2456
Blasting rock sections with complex structure in freezing weather. {Vzryvanie slozhnostrukturnykh uchastkov porod v zimnee vremia},
Pushkin, B.IA., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedeniĭ. Gornyĭ zhurnal,* 1980, No.10, p.59-61, In Russian.
Mining, Frozen fines, Blasting.

35-2457
Inertial oscillations in floe motion over the Beaufort Sea—observations and analysis.
Khandekar, M.L., *Atmosphere-ocean,* 1980, 18(1), p.1-14, In English with French summary. 11 refs.
Ice floes, Oscillations, Wind velocity, Mathematical models, Boundary value problems.

35-2458
Note on albedo variations of the frozen surface of Lake Simcoe during March, 1978.
Reid, J.D., et al, *Atmosphere-ocean,* 1980, 18(2), p.168-176, 13 refs.
Mickle, R.E., Taylor, P.A.
Lake ice, Albedo, Ice vapor interface, Solar radiation.

35-2459
Morphology and the role of landsliding in formation of some rock glaciers in the Mosquito Range, Colorado.
Vick, S.G., *Geological Society of America. Bulletin,* Feb. 1981, Pt.I 92(2), p.75-84, 17 refs.
Rock glaciers, Landslides, Geomorphology, Talus, Rheology.

35-2460
Mathematic-thermodynamic analysis of the anomalies of water and the temperature range of life.
Trincher, K., *Water research,* 1981, 15(4), p.433-448, 26 refs.
Ice water interface, Water, Molecular structure, Thermodynamics, Pressure, Temperature effects, Analysis (mathematics).

35-2461
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Mon, K.K., et al, *Journal of chemical physics.* Feb. 1, 1981, 74(3), p.2078-2080, 9 refs.
Stroud, D.
Liquids, Freezing points, Surface properties, Analysis (mathematics).

35-2462
LANDSAT digital analysis of the initial recovery of burned tundra at Kokolik River, Alaska.
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Ormsby, J.P., Johnson, L., Brown, J.
Tundra, Fires, Environmental impact, Remote sensing, Analysis (mathematics), LANDSAT, Revegetation.

35-2463
Measuring building R-values for large areas.
Flanders, S.N., et al, *Society of Photo-Optical Instrumentation Engineers. Proceedings,* 1981, Vol.254, MP 1388, p.137-138.
Marshall, S.J.
Buildings, Walls, Thermal regime, Heat flux, Surface temperature, Temperature measurement.
A method is being developed for measuring the R-values of large areas of building envelopes. This is a summary of progress to date. Temperature extremes on the building surface are located with an infrared videocamera, the R-values at those locations determined with contact thermal sensors and R-values interpolated for all other locations from the thermograms

35-2464
Cost of land treatment systems.
Reed, S.C., et al, *U.S. Environmental Protection Agency. Technical report,* Sep. 1979, EPA-430/9-75-003, MP 1387, 135p., 45 refs.
Crites, R.W., Thomas, R.E., Hais, A.B.
Seepage, Waste treatment, Sewage treatment, Water treatment, Cost analysis, Flow rate, Surface drainage, Land reclamation.
Cost information for planning is presented for the major land treatment concepts including slow rate, rapid infiltration and overland flow. Cost categories include land, preapplication treatment, transmission, storage, land application, and recovery of renovated water.

35-2465
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Permafrost, Frozen ground, Meetings.

35-2466
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Gas pipelines, Transportation, Environmental impact, Cold weather construction, Pipes (tubes).

35-2467
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King, G.G., *Oil and gas journal,* Mar. 16, 1981, 79(11), p.65-66, 71-72, 3 refs.
Frozen ground temperature, Underground pipelines, Pipes (tubes), Temperature variations, Forecasting, Thermodynamics.

35-2468
Frost heave of roads.
Jones, R.H., *Quarterly journal of engineering geology,* 1980, Vol.13, p.77-86, 47 refs.
Roads, Frost heave, Soil water migration, Construction materials, Permeability, Water table, Tests.

35-2469
Land disposal: state of the art.
Reed, S.C., MP 1392, National Symposium on Ultimate Disposal of Wastewaters and Their Residuals, Durham, N.C., April 26-27, 1973. Proceedings. Edited by F.E. McJunkin and P.A. Vesilind, Raleigh, North Carolina State University, 1973. p.229-261, 42 refs.
Waste disposal, Water treatment, Environmental protection, Seepage, Climatic factors, Flow rate, Vegetation, Aerosols, Health.

35-2470
Historical record of global atmospheric pollution revealed in polar ice sheets.
Boutron, C., et al, *Ambio,* 1980, 9(5), p.210-215, 43 refs.
Delmas, R.
Ice sheets, Impurities, Pollution, Air pollution, Snow composition, Antarctica, Greenland.
It has been recently demonstrated that polar ice sheets are effective indicators of past and present air pollution. Reliable data obtained from the analysis of ice sheets in Greenland and Antarctica are discussed. The atmospheric concentrations of heavy metals and sulfur compounds in these areas have been determined to have increased insignificantly over the past century Man's impact on these remote areas is presently negligible. Natural sources, such as volcanic eruptions, account for most of the pollutant deposition recorded in these ice sheets (Auth.)

35-2471
On the estimation of antarctic iceberg melt rate.
Neshyba, S., et al, *Journal of physical oceanography,* Oct. 1980, 10(10), p.1681-1685, 17 refs.
Josberger, E.G.
Icebergs, Melting, Antarctica.
Estimates of Antarctic iceberg melt rates made from field observations, iceberg distribution statistics, laboratory experiments and theoretical studies give a wide range of values Evaluation of the errors associated with each method allows for the quantitative first-order correction for both the effect of bubbles released from the melting ice on the convective heat transfer and the effect of other forms of iceberg deterioration besides sidewall melting. The results provide a best estimate for the melt rate of 5, 17 and 55 m/year at a temperature elevation above the freezing point of 2, 4 and 8C, respectively. (Auth. mod.)

35-2472
General circulation experiment with a coupled atmosphere, ocean and sea ice model.
Washington, W.M., et al, *Journal of physical oceanography,* Dec. 1980, 10(12), p.1887-1908, 47 refs.
Semtner, A.J., Jr., Mechl, G.A., Knight, D.J., Mayer, T.A.
Atmospheric circulation, Sea water, Chemical composition, Ocean currents, Sea ice distribution, Heat transfer, Models.
This paper describes the construction and results of a comprehensive, three-dimensional general circulation model (GCM) of the earth's climate. The model, developed at the National Center for Atmospheric Research (NCAR), links separate existing models of the atmosphere, ocean and sea ice. The atmospheric model is a version of the third-generation NCAR GCM which has a relatively complete treatment of physical processes It uses a generalized vertical coordinate with eight layers (approx 3km thick) and 5 deg horizontal grid spacing over the entire globe The ocean model, using the primitive equations and the hydrostatic and Boussinesq approximations, was changed to the world domain from an earlier model developed by Bryan (1969) a d reprogrammed by Semtner (1974) The model has four unequally spaced vertical layers and 5 deg horizontal grid structure. The sea ice model is a simple thermodynamic model using a simplified calculation of heat flux through sea ice (Semtner, 1976). Antarctic data are incorporated into the coupled model but the simulation more closely matches the observed arctic conditions than those observed in the Antarctic (Auth. mod.)

35-2473
Stochastic dynamic analysis of polar sea ice variability.
Lemke, P., et al, *Journal of physical oceanography,* Dec. 1980, 10(12), p.2100-2120, 26 refs.
Trinkl, E.W., Hasselmann, K.
Sea ice distribution, Dynamic properties, Mathematical models.
The analysis of Arctic (1966-76) and Antarctic (1973-79) sea ice data is presented, and a dynamical model based on white noise atmospheric forcing, local stabilizing relaxation and lateral diffusion and advection is constructed to explain the observations Longitudinal dependent forcing, feedback, lateral diffusion and advection parameters are derived by fitting the model to the observed cross-spectral matrix of the sea ice anomaly fields It is inferred that diffusion and advection of sea ice anomalies play an important role in sea ice dynamics The model advection patterns agree reasonably well with the observed ocean surface circulation in the Arctic Ocean and around Antarctica. (Auth.)

35-2474
Dynamics of forest biogeocenoses in Siberia. (Dinamika lesnykh biogeotsenozov Sibiri),
Smagin, V.N., ed. Novosibirsk, Nauka, 1980, 208p., In Russian. For selected articles see 35-2475 through 35-2484. Refs. passim.
Alpine tundra, Taiga, Landscape types, Cryogenic soils, Ecosystems, Biomass, Soil microbiology, Classifications, Terminology.

35-2475
Basic regularities governing the development and succession of forest biogeocenoses. (Osnovnye zakonomernosti razvitiia i smeny lesnykh biogeotsenozov),
Smagin, V.N., Dinamika lesnykh biogeotsenozov Sibiri (Dynamics of forest biogeocenoses in Siberia) edited by V.N. Smagin, Novosibirsk, Nauka, 1980, p.6-28, In Russian. 39 refs.
Forest soils, Biomass, Biogeography, Ecology, Ecosystems, Taiga, Human factors, Terminology.

35-2476
Trends in forest vegetation development in Siberia in Holocene according to spore-pollen data. (Tendentsii razvitiia lesnoi rastitel'nosti Sibiri v golotsene (po dannym *sporovo-pyl'tsevogo analiza*)),
Savina, L.N., Dinamika lesnykh biogeotsenozov Sibiri (Dynamics of forest biogeocenoses in Siberia) edited by V.N. Smagin, Novosibirsk, Nauka, 1980, p.28-53, In Russian. 26 refs.
Taiga, Cryogenic soils, Forest tundra, Plant ecology, Ecosystems, Landscape types.

35-2477
Dynamics of synusium structure during progressive successions in pine forest of West Sayan mountains. (Dinamika sinuzial'noi struktury pri vosstanovitel'nykh sukcessiiakh v chernevykh kedrovnikakh Zapadnogo Saiana),
Nazimova, D.I., et al, Dinamika lesnykh biogeotsenozov Sibiri (Dynamics of forest biogeocenoses in Siberia) edited by V.N. Smagin, Novosibirsk, Nauka, 1980, p.54-87, In Russian. 22 refs.
Ermolenko, P.N.
Mountains, Taiga, Cryogenic soils, Biomass, Plant ecology, Ecosystems, Landscape types, Human factors, Forestry, Revegetation.

35-2478
Dynamics of pseudo-taiga larch phytocenoses of the Central Khangay (Mongolia) induced by successive felling. (Dinamika fitotsenozov psevdotaezhnykh listvennichnikov tsentral'nogo Khangaia (MNR) pod vozdeistviem rubok glavnogo pol'zovaniia),
Korotkov, I.A., et al, Dinamika lesnykh biogeotsenozov Sibiri (Dynamics of forest biogeocenoses in Siberia) edited by V.N. Smagin, Novosibirsk, Nauka, 1980, p.87-97, In Russian. 7 refs.
Dorzhsuren, Ch.
Alpine tundra, Active layer, Plant ecology, Ecosystems, Biomass, Human factors, Soil temperature, Forestry, Revegetation.

35-2479
Microbe successions in sedge pine forest soils of different ages. (Mikrobnye suktsessii v pochvakh sosniaka osochkovo-orliakovogo razlichnogo vozrasta),
Vishniakova, Z.V., Dinamika lesnykh biogeotsenozov Sibiri (Dynamics of forest biogeocenoses in Siberia) edited by V.N. Smagin, Novosibirsk, Nauka, 1980, p.130-144, In Russian. 23 refs.
Taiga, Forest canopy, Litter, Soil chemistry, Soil microbiology.

35-2480
Phenology of Krasnoyarsk forest-steppe forests. (Fenologiia lesov Krasnoiarskoi lesostepi),
Elagin, I.N., Dinamika lesnykh biogeotsenozov Sibiri (Dynamics of forest biogeocenoses in Siberia) edited by V.N. Smagin, Novosibirsk, Nauka, 1980, p.159-175, In Russian. 5 refs.
Taiga, Cryogenic soils, Protective vegetation, Steppes, Frost penetration, Snow cover effect, Forest canopy, Litter, Snow cover distribution, Human factors.

35-2481
Role of grass-shrub-stratum plants in the transformation of nutrient elements introduced by fertilizing herb-cranberry pine forests. (Rol' rastenii traviano-kustarnichkovogo iarusa v transformatsii elementov pitaniia pri vnesenii udobrenii v sosniake raznotravno-brusnichnom),
Kulagina, M.A., Dinamika lesnykh biogeotsenozov Sibiri (Dynamics of forest biogeocenoses in Siberia) edited by V.N. Smagin, Novosibirsk, Nauka, 1980, p.98-112, In Russian. 14 refs.
Forest soils, Cryogenic soils, Soil chemistry, Nutrient cycle, Biomass.

35-2482
Structural and dynamic peculiarities of microbe cenoses formation in forest soils of the Angara River area. (Strukturno-dinamicheskie osobennosti formirovaniia mikrobotsenozov v lesnykh pochvakh Priangar'ia),
Sorokin, N.D., Dinamika lesnykh biogeotsenozov Sibiri (Dynamics of forest biogeocenoses in Siberia) edited by V.N. Smagin, Novosibirsk, Nauka, 1980, p.113-130, In Russian. 23 refs.
Cryogenic soils, Soil microbiology, Ecology, Ecosystems, Forest soils, USSR—Angara River.

35-2483
Seasonal dynamics of phytocenoses in the sub-Alpine bald-peak belt of West Sayan. (Sezonnaia dinamika fitotsenozov subal'piisko-podgol'tsovogo poiasa Zapadnogo Saiana),
Vlasenko, V.I., Dinamika lesnykh biogeotsenozov Sibiri (Dynamics of forest biogeocenoses in Siberia) edited by V.N. Smagin, Novosibirsk, Nauka, 1980, p.175-200, In russian. 55 refs.
Alpine landscapes, Meadow soils, Taiga, Snow cover distribution, Snow depth, Soil freezing, Frost penetration, Plant physiology, Biomass.

35-2484
Theory and application of the concept of ecogenesis of forest biogeocenoses. (Zakliuchenie (teoreticheskoe i prikladnoe znachenie kontseptsii ekogeneza lesnykh biogeotsenozov)),
Smagin, V.N., Dinamika lesnykh biogeotsenozov Sibiri (Dynamics of forest biogeocenoses in Siberia) edited by V.N. Smagin, Novosibirsk, Nauka, 1980, p.201-205, In Russian.
Terminology, Classifications, Taiga, Alpine tundra, Landscape types, Plant ecology, Cryogenic soils, Soil microbiology.

35-2485
Climatic conditions and microclimate of taiga geosystems in Siberia. (Klimaticheskie usloviia i mikroklimat taezhnykh geosistem Sibiri),
Bufal, V.V., ed. Novosibirsk, Nauka, 1980, 232p. In Russian. For selected papers see 35-2485 through 35-2592. Refs passim.
Sorokina, L.P., ed.
Taiga, Snow cover, Albedo, Forest canopy, Solar radiation, Radiation balance, Microclimatology, Air temperature, Soil temperature, Thermal regime, Wind factors.

35-2486
Radiation balance of the Siberian taiga zone. (Radiatsionnyi balans taezhnoi zony Sibiri),
Bufal, V.V., et al, Klimaticheskie usloviia i mikroklimat taezhnykh geosistem Sibiri (Climatic conditions and microclimate of taiga geosystems in Siberia) edited by V.V. Bufal and L.P. Sorokina, Novosibirsk, Nauka, 1980, p.5-30, In Russian. 68 refs.
Taiga, Snow cover, Albedo, Forest canopy, Solar radiation, Radiation balance, Meteorological charts, Meteorological data.

35-2487
Atmospheric circulation effect on thermal regime of Siberian climate. (Vliianie tsirkuliatsii atmosfery na teplovoi rezhim klimata Sibiri),
Sergeev, N.I., Klimaticheskie usloviia i mikroklimat taezhnykh geosistem Sibiri (Climatic conditions and microclimate of taiga geosystems in Siberia) edited by V.V. Bufal and L.P. Sorokina, Novosibirsk, Nauka, 1980, p.31-48, In Russian. 13 refs.
Atmospheric circulation, Air temperature, Climatic changes, Seasonal variations, Meteorological charts, Meteorological data, USSR—Siberia.

35-2488
Radiation regime of southern taiga in the lower course of the Angara River. (Radiatsionnyi rezhim iuzhnoi taigi nizhnego Priangar'ia),
Grigor'ev, G.N., Klimaticheskie usloviia i mikroklimat taezhnykh geosistem Sibiri (Climatic conditions and microclimate of taiga geosystems in Siberia) edited by V.V. Bufal and L.P. Sorokina, Novosibirsk, Nauka, 1980, p.49-109, In Russian. 70 refs.
River basins, Valleys, Taiga, Landscape types, Soil temperature, Seasonal variations, Forest canopy, Solar radiation, Albedo, Radiation absorption, Radiation scattering, Snow cover effect.

35-2489
Diurnal variations of air temperature over the West Siberian Plain during winter. (Vnutrisutochnaia izmenchivost' temperatury vozdukha na territorii Zapadno-Sibirskoi ravniny v Zimnii period),
Sorokina, L.P., Klimaticheskie usloviia i mikroklimat taezhnykh geosistem Sibiri (Climatic conditions and microclimate of taiga geosystems in Siberia) edited by V.V. Bufal and L.P. Sorokina, Novosibirsk, Nauka, 1980, p.110-143, In Russian. 44 refs.
Air temperature, Temperature variations, Meteorological charts, Meteorological data, Cold weather construction, Urban planning.

35-2490
Climate and microclimate of central taiga in West Siberia. (Klimat i mikroklimat srednei taigi Zapadnoi Sibiri),
Trofimova, I.E., Klimaticheskie usloviia i mikroklimat taezhnykh geosistem Sibiri (Climatic conditions and microclimate of taiga geosystems in Siberia) edited by V.V. Bufal and L.P. Sorokina, Novosibirsk, Nauka, 1980, p.144-182, In Russian. 66 refs.
Taiga, Landscape types, Cryogenic soils, Microclimatology, Solar radiation, Soil temperature, Seasonal variations.

35-2491
Thermal regime of soils in southern taiga of the Irtysh River area during warm periods. (Temperaturnyi rezhim pochv iuzhnotaezhnogo Prirtysh'ia v teplyi period),
Linevich, N.L., Klimaticheskie usloviia i mikroklimat taezhnykh geosistem Sibiri (Climatic conditions and microclimate of taiga geosystems in Siberia) edited by V.V. Bufal and L.P. Sorokina, Novosibirsk, Nauka, 1980, p.183-195, In Russian. 11 refs.
River basins, Taiga, Soils, Thermal regime, Vegetation factors, Snow cover effect, Topographic effects, USSR—Irtysh River.

35-2492
Description and analysis of spectra of the horizontal component of wind velocity over the Asiatic USSR. (Opisanie i analiz spektrov gorizontal'noi komponenty skorosti vetra na Aziatskoi territorii SSSR),
Durnev, V.F., Klimaticheskie usloviia i mikroklimat taezhnykh geosistem Sibiri (Climatic conditions and microclimate of taiga geosystems in Siberia) edited by V.V. Bufal and L.P. Sorokina, Novosibirsk, Nauka, 1980, p.196-210, In Russian. 10 refs.
Atmospheric circulation, Air temperature, Mountains, River basins, Wind velocity, Meterological data, Meterological charts.

35-2493
Health aspects of land treatment.
Reed, S.C., MP 1389, Cincinnati, Oh., U.S. Environmental Protection Agency, 1979, 43p., Prepared for Seminar on Land Treatment of Municipal Wastewater Effluents, June 1979. 52 refs.
Waste treatment, Pollution, Health, Water treatment, Land restoration.

35-2494
Hand-held infrared systems for detecting roof moisture.
Tobiasson, W., et al, MP 1390, Symposium on Roofing Technology, Gaithersburg, Md., Sep. 21-23, 1977. Proceedings, (1977), p.261-271, 4 refs.
Korhonen, C., Van den Berg, A.
Roofs, Moisture detection, Moisture meters, Infrared reconnaissance, Thermal insulation.

35-2495
Rheological behavior of bituminous cement in a balance rheometer. (Das rheologische Verhalten von bituminösen Bindemitteln im Balance-Rheometer),
Mayer, H.G., *Bitumen*, Sep.-Oct. 1980, 42(5), p 134-139, *In German.*
Bitumens, Cements, Rheology, Measuring instruments.

35-2496
Northern community: a search for a quality environment.
Specialty Conference on the Northern Community, Seattle, Washington, April 8-10, 1981, New York, N.Y., American Society of Civil Engineers, 1981, 786p., Refs. passim. For selected papers see 35-2497 through 35-2536 or G-24524.
Vinson, T.S., ed.
Permafrost, Cold weather construction, Urban planning, Waste treatment, Engineering, Ice cover strength, Frost action, Design.

35-2497
Community development in the circumpolar North.
Rhoads, E.M., Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.1-15, 19 refs.
Urban planning, Cold weather construction, Economic development, Polar regions.

35-2498
Urban design lessons for Alaska.
Morehouse, R.K., et al, Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.16-23, 2 refs.
Crittenden, E.B.
Urban planning, Engineering, Cold weather construction, Design, United States—Alaska.

35-2499
Community planning considerations in cold regions.
Ryan, W.L., Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.54-63, 5 refs.
Urban planning, Cold weather construction, Utilities, Polar regions.

35-2500
Building the northern urban environment.
Fletcher, R.H., Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.71-87.
Urban planning, Cold weather construction, Economic development, Cost analysis, Design.

35-2501
Design of the built environment in cold regions.
Crittenden, E.B., Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.103-114, 3 refs.
Urban planning, Cold weather construction, Design, Climate, Polar regions.

35-2502
Accommodation design for remote settlements.
Bent, C., Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.115-131, 6 refs.
Urban planning, Cold weather construction, Design, Polar regions.

35-2503
Space-time environment—man, architecture, climate and technology.
Gérin-Lajoie, G., Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.132-142.
Urban planning, Cold weather construction, Construction materials, Buildings, Time factor, Climatic factors, Design.

35-2504
Log school: a case for appropriate design.
Dubbs, P., et al, Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.143-156, 13 refs.
Barnhardt, R.
Buildings, Design, Construction materials, Cold weather construction, Maintenance.

35-2505
Environmental constraints on technology.
Atkins, J.T., Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.208-224, 37 refs.
Urban planning, Cold weather construction, Engineering, Acclimatization, Polar regions, Environments.

35-2506
Port feasibility study, Nome, Alaska.
Gadd, P.E., et al, Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.235-248.
Zemgals, Z., Chmelik, F.
Ports, Cold weather construction, Design, Coastal topographic features, Ice conditions, Sediment transport, Offshore structures, United States—Alaska—Nome.

35-2507
Lightering with air cushion vehicles in Alaska.
Thomas, B.C., Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.249-263, 5 refs.
Air cushion vehicles, Transportation, Polar regions, Cost analysis.

35-2508
Lake overflow—a hazard to winter travel in northern regions.
Nelson, W.G., Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.264-277, 10 refs.
Frozen lakes, Surface waters, Ice water interface, Ice crossings, Ice cover strength, Ice cover thickness, Analysis (mathematics), Bearing strength, Overflows.

35-2509
Principle of railway line selection in alpine permafrost regions.
Qui, G., et al, Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.278-287, 4 refs.
Zhang, C., Wang, D.
Railroads, Engineering geology, Permafrost beneath roads, Alpine landscapes, Cold weather construction, Site surveys.

35-2510
New U.S. station for Antarctica.
Esser, A.C., Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.288-299, 3 refs.
Cold weather construction, Stations, Shelters, Buildings, Antarctica—Siple Station.
A new self-supporting facility, capable of housing personnel in a safe and comfortable manner on a year-round basis in the rigorous antarctic environment, was needed to replace the existing facility at Siple Station in Antarctica which was being crushed by snow and ice. Local problems included limited equipment at the station for unloading aircraft of constructing the facility, notoriously poor flying weather in this region and a tendency for drifting snow to bury materials. Designers worked closely with construction supervisors and a manufacturer of modular housing units to develop a facility that could be transported to the site and assembled there under harsh antarctic conditions. In designing the station, engineers had to conceive an enclosure that would protect the modular facilities from the crushing pressures of the ice resulting from an annual accumulation of approximately five feet of snow. Construction was accomplished over the course of two austral summers, and the station became operational on schedule in January 1979.

35-2511
Modular heliportable shelter system for small camps.
Kovacs, J.M., Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.313-332.
Portable shelters, Cold weather construction.

35-2512
Stackwall—small log buildings for remote areas.
Sparling, A.B., et al, Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.333-347, 9 refs.
Lansdown, A.M.
Buildings, Houses, Cold weather construction, Construction materials, Walls, Foundations.

35-2513
Construction in an arctic environment without adequate inspection.
Hoar, C.L., Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.348-361, 5 refs.
Buildings, Cold weather construction, Defects, Legislation, Climatic factors, Damage.

35-2514
Window performance in extreme cold.
Flanders, S.N., et al, MP 1393, Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.396-408, 2 refs.
Buska, J.S., Barrett, S.
Windows, Cold weather construction, Weatherproofing, Moisture, Climatic factors, Countermeasures.
Extreme cold causes heavy buildup of frost, ice and condensation on many windows. It also increases the incentive for improving the airtightness of windows in Alaska to avoid moisture accumulation in homes and barracks. We base our conclusions on a two-year study of Alaskan military bases that included recording humidity and temperature data, observing moisture accumulation on windows and measuring airtightness with a fan pressurization device. Our study shows that tightening Alaskan windows to permit only 50% of the air leakage allowed to current American standards for window airtightness is economically attractive.

35-2515
Single wire ground return transmission for rural Alaska.
Bettine, F.J., et al, Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.409-424, 2 refs.
Retherford, R.W.
Transmission lines, Cold weather construction, Electrical grounding, Electrical resistivity, Design.

35-2516
Advanced northern utility piping system.
Fiala, T., et al, Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.425-437, 3 refs.
O'Brien, E.T., Whyman, A.D.
Utilities, Pipeline insulation, Cold weather construction, Underground pipelines, Sanitary engineering.

35-2517
Parking deck deterioration from chlorides.
Jacobson, N.G., et al, Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.438-448, 6 refs.
Kvalheim, K.A.
Winter maintenance, Reinforced concretes, Salting, Damage, Corrosion, Detection, Chemical ice prevention.

35-2518
Mixing and microorganism survival in the Slave River, N.W.T.
Smith, D.W., et al, Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.449-470, 12 refs.
Gerard, R.
Waste treatment, Water treatment, Subglacial observations, Microbiology, Turbulent diffusion, Bacteria.

35-2519
Aquaculture for wastewater treatment in cold climates.
Reed, S.C., et al, MP 1394, Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.482-492, 12 refs.
Bouzoun, J.R.
Waste treatment, Water treatment, Plants (botany), Aquaculture.
Aquaculture systems for wastewater treatment often include plants, finned fish, animals and microorganisms in various combinations in aquatic settings such as ponds, marshes, bogs and other forms of wetlands. Natural settings have often been used in the past but there is a trend toward constructed systems which permit more reliable management at higher rates of treatment. This paper evaluates the potential for application of aquaculture concepts for wastewater treatment in cold climates. Constructed wetlands and the enclosed high rate processes offer the most promise of the concepts considered. Systems based on plants are more effigient, require less area and are easier to control than concepts involving higher forms of animals.

35-2520
Dry ash handling system in cold climate conditions.
Rafay, T., et al, Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.493-506, 5 refs.
Wesley, R.
Waste disposal, Solids, Coal, Cold weather performance, Ashes.

35-2521
Methane productions in sanitary landfills in cold regions.
Dickason, O.E., et al, Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.507-511, 12 refs.
Nelson, W.G.
Waste disposal, Soil temperature, Gases, Sanitary engineering, Cold weather performance.

35-2522
Winter air pollution at Fairbanks, Alaska.
Coutts, H.J., et al, MP 1395, Specialty Conference on the Northern Community, Seattle, Wa., Apr 8-10, 1981. Proceedings Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p 512-528, 16 refs.
Jenkins, T.F.
Air pollution, Chemical analysis, Environmental impact, Motor vehicles, Human factors, Standards, Exhaust gases.
Air quality measurements were made for both gases and particulates at several locations near Fairbanks, Alaska, during winter. The results indicated that carbon monoxide levels downtown frequently exceeded air quality standards and were significantly elevated at more rural locations up to 22 km from the downtown area High levels were found to be associated with temperature inversions. Nitric oxide levels were measured and found to range from less than 50 to over 500 parts per billion (ppb) downtown. Levels of 1 to 68 ppb were measured in a more rural location The major source of both CO and NO at Fairbanks was found to be auto exhaust Levels of particulate lead in the downtown area were found to exceed Federal Standard for all 4 winter months Lead levels at the more rural site were only about one-tenth those of downtown and did not exceed standards.

35-2523
Dawson City water and sewerage program—an overview.
Shillington, E.I., et al, Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.544-554
Kiefer, W.H., Nuttall, N.J.
Utilities, Water pipelines, Cold weather construction, Permafrost, Climatic factors, Design.

35-2524
Evaluation of alternative water bleeder controls.
Yee, A., et al, Specialty Conference on the Northern Community, Seattle, Wa., Apr 8-10, 1981. Proceedings. Edited by T S Vinson, New York, American Society of Civil Engineers, 1981, p.555-569, 14 refs
Smith, D.W.
Water pipes, Water flow, Pipeline freezing, Countermeasures, Heat loss.

35-2525
Water chemistry in a permafrost environment, Alaska.
Krothe, N.C., Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p 570-590, 18 refs
Permafrost hydrology, Surface waters, Springs (water), Water chemistry.

35-2526
Subarctic snowmelt runoff generation.
Kane, D.L., et al, Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.591-601, 7 refs.
Bredthauer, S.R., Stein, J.
Snowmelt, Runoff, Watersheds, Permafrost hydrology, Seasonal ablation, Stream flow, Flood forecasting.

35-2527
Ground temperature studies at an arctic drained lake site.
Judge, A., et al, Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.642-658, 14 refs.
Burgess, M., Taylor, A., Allen, V.
Permafrost beneath lakes, Soil temperature, Boreholes.

35-2528
Divisional indexes and marks of horizontal distribution of permafrost in China.
Ding, D., et al, Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.659-663, 2 refs.
Xu, X.
Permafrost distribution, Soil temperature, Permafrost heat balance, Air temperature, Analysis (mathematics).

35-2529
Shallow foundations in continuous permafrost.
Phukan, A., Specialty Conference on the Northern Community, Seattle, Wa., Apr 8-10, 1981 Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.664-677, 9 refs
Continuous permafrost, Cold weather construction, Foundations, Subgrade preparation, Thermal regime, Buildings, Active layer.

35-2530
Present condition (1980) of the TAPS gravel workpad.
Krzewinski, T.G., et al, Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.678-692, 1 ref.
Clarke, E.S., Metz, M.C.
Cold weather construction, Permafrost weathering, Gravel, Soil mechanics, Environmental impact, Human factors, Roads, Pipelines, Subgrades.

35-2531
Construction and performance of frozen gravel fills.
Tart, R.G., et al, Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.693-704, 3 refs.
Luscher, U.
Cold weather construction, Gravel, Earth fills, Subgrades, Permafrost preservation, Permafrost thermal properties, Ground thawing, Stability, Foundations, Tundra, Environmental impact, Active layer, Ground ice, Frozen rocks.

35-2532
Chilled gas pipeline—frost-heave design.
Svec, O.J., Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.705-718, 21 refs.
Underground pipelines, Gas pipelines, Frost heave, Seasonal freeze thaw, Pipeline insulation, Thermal conductivity, Mathematical models, Design.

35-2533
Frost depth prediction for highway subgrade soils.
Haas, W.M., et al, Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.719-733, 25 refs.
Bovid, G.C.
Soil freezing, Frost penetration, Subgrades, Roads, Freezing indexes, Frost forecasting, Air temperature, Water table, Analysis (mathematics).

35-2534
Survey of preventing cold region engineering constructions from frost damage in China.
Chen, X., Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.734-740, 6 refs.
Permafrost beneath structures, Permafrost distribution, Cold weather construction, Structures, Engineering, Frost action, Countermeasures, Frost heave, Damage, Seasonal freeze thaw.

35-2535
Relationship between normal frost-heaving forces and areas of bearing plates.
Tong, C.G., et al, Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.741-748, 9 refs.
Yu, C.G.
Frost heave, Strength, Sands, Clays, Freezing, Frost penetration, Plates, Soil water, Experimentation.

35-2536
Ice force measurement on the Yukon River bridge.
McFadden, T., et al, MP 1396, Specialty Conference on the Northern Community, Seattle, Wa., Apr. 8-10, 1981. Proceedings. Edited by T.S. Vinson, New York, American Society of Civil Engineers, 1981, p.749-777, 11 refs.
Haynes, D., Burdick, J., Zarling, J.
Ice breakup, Ice pressure, Ice loads, Impact strength, Bridges, Ice cover strength, Loads (forces), Ice cover thickness, Radar echoes.
The Alaskan Projects Office of Cold Regions Research and Engineering Laboratory has been studying the forces imposed on the Yukon River bridge by ice during breakup. The study involved four consecutive breakups from 1977 thru 1980. Forces have been measured using load cells mounted on the front of the number 5 pier to intercept the ice as it strikes the pier Accelerometers mounted on piers number 4 and 5 were used to measure the response of the pier to the ice impacts Calibration procedures were employed to determine a transfer function which relates the accelerations to the applied forces. Ice thicknesses were measured using short pulse radar techniques. River ice damaged or destroyed the first generation load cell designs, but some useful data was obtained before failure. Radar techniques show some promise for the measurement of ice thicknesses during breakup.

35-2537
Laboratory studies to investigate isotope effects occurring during the formation of permafrost.
Michel, F., et al, *Canada Department of Energy, Mines and Resources Earth Physics Branch Open file*, 1978, 78-5, 43p., In English with French summary.
Fritz, P.
Isotopes, Permafrost physics, Soil freezing, Freezing rate, Temperature effects, Frost mounds, Oxygen, Hydrogen, Heavy water, Experimentation.

35-2538
Geological, geochemical and geotechnical observations on the Bering Shelf, Alaska.
Larsen, M.C., et al, *U.S. Geological Survey Open-file report*, 1980, 80-979, Var.p., Unpublished manuscript. Includes 17 papers.
Nelson, C.H., Thor, D.R
Ocean currents, Bottom sediment, Ocean waves, Ice scoring, Sedimentation, Liquefied gases, Geologic processes, Composition, Marine biology, Exploration, Physical properties, Bering Sea.

35-2539
Proceedings.
Workshop on Hydraulic Resistance of River Ice, Burlington, Ontario, Sep.23-24, 1980, Burlington, Ontario, National Water Research Institute, (1981), 301p., Refs. passim. For individual papers see 35-2540 through 35-2558.
Tsang, G., ed, Beltaos, S., ed.
River ice, Hydrodynamics, Ice mechanics, Friction, Frazil ice, Ice jams, Ice bottom surface, Surface roughness, Meetings, Hydraulics.

35-2540
Flow in ice covered channels: some fundamentals.
Gerard, R., Workshop on Hydraulic Resistance of River Ice, Burlington, Ontario, Sep 23-24, 1980 Proceedings. Edited by G Tsang and S. Beltaos. Burlington, Ontario, National Water Research Institute, 1981, p.8-22, 15 refs.
Water flow, Ice cover effect, Ice bottom surface, Surface roughness, Channels (waterways), Water level, Boundary layer, Shear properties, Design.

35-2541
Investigation of the resistance coefficient for the underside of ice covers.
Chee, S.P., et al, Workshop on Hydraulic Resistance of River Ice, Burlington, Ontario, Sep 23-24, 1980 Proceedings Edited by G. Tsang and S Beltaos, Burlington, Ontario, National Water Research Institute, 1981, p.23-33, 7 refs.
Haggag, M.R.
Stream flow, Ice cover effect, Hydrodynamics, Channels (waterways), Ice bottom surface, Surface roughness, Friction, Analysis (mathematics).

35-2542
Conveyance capacity with ice cover for the Nashwaak River, N.B.
Burrell, B., et al, Workshop on Hydraulic Resistance of River Ice, Burlington, Ontario, Sep. 23-24, 1980. Proceedings. Edited by G Tsang and S Beltaos. Burlington, Ontario, National Water Research Institute, 1981, p.34-56, 5 refs.
Davar, K.S.
River flow, River ice, Ice cover effect, Ice bottom surface, Surface roughness, Flow rate, Hydraulics, Slopes.

35-2543
Resistance of Beauharnois Canal in winter.
Tsang, G., Workshop on Hydraulic Resistance of River Ice, Burlington, Ontario, Sep. 23-24, 1980 Proceedings. Edited by G. Tsang and S. Beltaos, Burlington, Ontario, National Water Research Institute, 1981, p.57-78, 11 refs. Discussion p 74-78.
Water flow, Ice cover effect, Channels (waterways), Friction, Flow rate, Hydraulics, Mechanical properties.

35-2544
Hydraulic resistance of the ice cover in the International Rapids section of the St. Lawrence River.
Witherspoon, D.F., Workshop on Hydraulic Resistance of River Ice, Burlington, Ontario, Sep 23-24, 1980. Proceedings. Edited by G Tsang and S Beltaos, Burlington, Ontario, National Water Research Institute, 1981, p.79-93, 2 refs.
River flow, Ice cover effect, Friction, Flow rate, Ice bottom surface, Surface roughness, Hydraulics, Analysis (mathematics).

35-2545
Analysis of velocity profiles under ice in shallow streams.
Calkins, D.J., et al, MP 1397, Workshop on Hydraulic Resistance of River Ice, Burlington, Ontario, Sep. 23-24, 1980. Proceedings. Edited by G. Tsang and S. Beltaos, Burlington, Ontario, National Water Research Institute, 1981, p.94-111, 6 refs.
Deck, D., Martinson, C.
Stream flow, Ice cover effect, Flow rate, Shear stress, Surface roughness, Ice bottom surface, Profiles.

35-2546
Discharge/water level relationship for ice cover stability.
Carson, R.K., et al, Workshop on Hydraulic Resistance of River Ice, Burlington, Ontario, Sep 23-24, 1980. Proceedings. Edited by G. Tsang and S. Beltaos, Burlington, Ontario, National Water Research Institute, 1981, p.112-120, 6 refs.
Lavender, S.T.
Water flow, Water level, Ice cover effect, Friction, River ice, Freezeup, Ice breakup, Flow rate.

35-2547
Characteristics of flow below a rough floating cover.
Gogus, M., et al, Workshop on Hydraulic Resistance of River Ice, Burlington, Ontario, Sep. 23-24, 1980. Proceedings. Edited by G. Tsang and S. Beltaos, Burlington, Ontario, National Water Research Institute, 1981, p.122-142, 11 refs.
Tatinclaux, J.C.
Stream flow, Floating ice, Ice jams, Surface roughness, Ice bottom surface, Friction, Shear stress, Turbulent flow, Profiles, Boundary layer, Flow measurement, Analysis (mathematics).

35-2548
Breakup process and the documentation of the 1978 ice jams on the Athabasca River at Fort McMurray.
Andres, D.D., Workshop on Hydraulic Resistance of River Ice, Burlington, Ontario, Sep. 23-24, 1980. Proceedings. Edited by G. Tsang and S. Beltaos, Burlington, Ontario, National Water Research Institute, 1981, p.143-161, 9 refs.
River flow, Ice jams, Ice breakup, Surface roughness, Ice bottom surface, Friction.

35-2549
Observation and analysis of freeze up ice jams on the Peace River near Taylor.
Keenhan, T., et al, Workshop on Hydraulic Resistance of River Ice, Burlington, Ontario, Sep. 23-24, 1980. Proceedings. Edited by G. Tsang and S. Beltaos, Burlington, Ontario, National Water Research Institute, 1981, p.162-181, 9 refs.
Panu, U.S., Kartha, V.C.
River flow, Ice jams, Freezeup, Ice conditions, Ice mechanics, Floods, Models.

35-2550
On river ice hydraulics (a discussion).
Michel, B., Workshop on Hydraulic Resistance of River Ice, Burlington, Ontario, Sep. 23-24, 1980 Proceedings. Edited by G Tsang and S. Beltaos, Burlington, Ontario, National Water Research Institute, 1981, p.182-190, 4 refs. Reply by B. Andres.
Andres, D.D.
Ice jams, Ice bottom surface, Surface roughness, Hydraulics, Ice cover thickness.

35-2551
Hydraulic resistance generated by frazil ice formation.
Gosink, J.P., et al, Workshop on Hydraulic Resistance of River Ice, Burlington, Ontario, Sep. 23-24, 1980. Proceedings. Edited by G. Tsang and S. Beltaos, Burlington, Ontario, National Water Research Institute, 1981, p.192-194, Extended abstract. 2 refs.
Osterkamp, T.E.
Frazil ice, River flow, Flow rate, Friction, Hydraulics, Freezeup, Ice water interface, Viscous flow, Models.

35-2552
Hanging dams in the Manitoba Hydro System.
Hopper, H.R., et al, Workshop on Hydraulic Resistance of River Ice, Burlington, Ontario, Sep. 23-24, 1980. Proceedings. Edited by G. Tsang and S. Beltaos, Burlington, Ontario, National Water Research Institute, 1981, p.195-208, 4 refs.
Raban, R.R.
Ice dams, River flow, Friction, Hydrodynamics, Ice cover effect, Ice formation, Slush, Electric power.

35-2553
Analysis of hydraulic and ice conditions at Terrebonne in relation with winter and spring floods.
Tremblay, P.R., et al, Workshop on Hydraulic Resistance of River Ice, Burlington, Ontario, Sep. 23-24, 1980 Proceedings. Edited by G. Tsang and S. Beltaos, Burlington, Ontario, National Water Research Institute, 1981, p.209-226, 4 refs.
Thibeault, D.
Hydraulics, Ice conditions, River flow, Floods, Water level, Surface roughness, Ice bottom surface, Ice cover thickness, Ice dams, Ice jams, Profiles, Seasonal variations.

35-2554
Harnessing frazil ice.
Perham, R.E., MP 1398, Workshop on Hydraulic Resistance of River Ice, Burlington, Ontario, Sep 23-24, 1980. Proceedings. Edited by G Tsang and S. Beltaos, Burlington, Ontario, National Water Research Institute, 1981, p.227-237.
Frazil ice, Ice control, River ice, River flow, Flow rate, Hydrodynamics, Ice formation.
The techniques for analyzing velocity profiles should be carefully considered in shallow streams where the flow depth is less than 1 m. The two procedures, a) mean and maximum velocity determinations and b) intercept evaluation of log (depth)-velocity plots, yield different results for the various resistance coefficients and shear stress values. The mean-max-velocity method generally predicts higher values than the other and is recommended for shallow streams. The minimum distance from a boundary to the position of maximum velocity for a good velocity profile appears to be roughly 15 to 20 cm with a 5 cm diameter sensor.

35-2555
Acoustic detection of frazil formation.
Hanley, T.O., et al, Workshop on Hydraulic Resistance of River Ice, Burlington, Ontario, Sep. 23-24, 1980. Proceedings. Edited by G. Tsang and S. Beltaos, Burlington, Ontario, National Water Research Institute, 1981, p.238-241, 1 ref.
Ramachandra Rao, S.
Frazil ice, Ice formation, Ice acoustics, Ice detection, Ice crystal growth, Water temperature, Air temperature.

35-2556
Limitations to numerical modelling of ice in rivers.
Petryk, S., et al, Workshop on Hydraulic Resistance of River Ice, Burlington, Ontario, Sep. 23-24, 1980. Proceedings. Edited by G. Tsang and S. Beltaos, Burlington, Ontario, National Water Research Institute, 1981, p.243-262, 16 refs.
Clément, F.
Frazil ice, Ice conditions, Mathematical models, Flow rate, Friction, Ice bottom surface, Surface roughness, Erosion, Ice dams, River ice, Stability, Thermal regime.

35-2557
Recent improvements in numerical modelling of river ice.
Petryk, S., et al, Workshop on Hydraulic Resistance of River Ice, Burlington, Ontario, Sep. 23-24, 1980. Proceedings. Edited by G. Tsang and S. Beltaos, Burlington, Ontario, National Water Research Institute, 1981, p.263-280, 5 refs.
Panu, U., Clément, F.
River ice, Mathematical models, Ice conditions, Frazil ice, Ice melting, Computer applications.

35-2558
Evaluation of ice jam roughness, Thames River, Ontario.
Knowles, W.L., et al, Workshop on Hydraulic Resistance of River Ice, Burlington, Ontario, Sep. 23-24, 1980. Proceedings. Edited by G. Tsang and S. Beltaos, Burlington, Ontario, National Water Research Institute, 1981, p.281-294, 3 refs.
Hodgins, D.B.
Ice jams, Ice bottom surface, Surface roughness, Water flow, Water level, Floods, Ice cover thickness.

35-2559
Sessions on the hydraulic resistance of ice covers and ice jams: some reflections.
Gerard, R., Workshop on Hydraulic Resistance of River Ice, Burlington, Ontario, Sep. 23-24, 1980. Proceedings. Edited by G. Tsang and S. Beltaos, Burlington, Ontario, National Water Research Institute, 1981, p.296-298.
Hydraulics, Friction, Ice cover effect, Ice jams, Ice bottom surface, Surface roughness, Water flow, Channels (waterways).

35-2560
Some aids for solving winter weather problems. *Highways and public works*, Aug. 1980, 48(1845), p.15-25.
Snow removal, Road maintenance, Winter maintenance, Equipment.

35-2561
Reports on the 1979 glaciological survey. [Relazioni della campagna glaciologica 1979]. *Comitato glaciologico italiano. Bollettino*, 1980, 3(2), p.80-128. In Italian.
Glacier Surveys, Mountain glaciers, Italy.

35-2562
Time to end hard wintertime starting. *American city and county*, Jan. 1981, 97(1), p.48.
Engine starters, Winter maintenance, Cold weather performance, Motor vehicles.

35-2563
Snow and avalanches in the Swiss Alps, winter 1978/79. [Schnee und Lawinen in den Schweizer Alpen, Winter 1978/79].
Davos, Switzerland. Eidgenössisches Institut für Schnee- und Lawinenforschung, Its Winterberichte, No 43, 1980, Davos, Switzerland, 1980, 155p., In German. For selected papers see 35-2564 through 35-2567.
Snow surveys, Avalanches, Snow accumulation, Snow depth, Damage, Accidents, Switzerland—Alps.

35-2564
Snow and avalanches in the Davos area. [Schnee und Lawinen in der Region Davos].
Föhn, P., et al, *Davos, Switzerland. Eidgenössisches Institut für Schnee- und Lawinenforschung. Winterberichte*, 1980, No.43, p.30-43, In German
Beck, E.
Snow accumulation, Avalanche formation, Snow depth, Snow surface, Switzerland—Davos.

35-2565
Snow and avalanche conditions in the Swiss Alps. [Schnee- und Lawinenverhältnisse im schweizerischen Alpengebiet].
Schild, M., et al, *Davos, Switzerland. Eidgenössisches Institut für Schnee- und Lawinenforschung. Winterberichte*, 1980, No.43, p.44-92, In German.
Gliott, S.
Snow surveys, Avalanche formation, Snow depth, Statistical analysis, Switzerland—Alps.

35-2566
Accidents and damage due to avalanches. [Durch Lawinen verursachte Unfälle und Schäden].
Schild, M., et al, *Davos, Switzerland. Eidgenössisches Institut für Schnee- und Lawinenforschung. Winterberichte*, 1980, No.43, p.93-151, In German.
Etter, H.J., Gliott, S.
Avalanche formation, Accidents, Damage, Snow accumulation, Snow depth, Switzerland—Alps.

35-2567
Influence of the observatory summit on radiation measurements. [Der Einfluss des Institutsgipfels auf die Strahlungsmessungen].
Buser, O., *Davos, Switzerland. Eidgenössisches Institut für Schnee- und Lawinenforschung. Winterberichte*, 1980, No.43, p.152-154, In German.
Albedo, Radiation, Snow optics, Snow cover effect, Measurement, Analysis (mathematics), Light scattering.

35-2568
Land treatment of wastewaters for rural communities.
Reed, S.C., et al, MP 1399, Rural Environmental Engineering Conference, Warren Vt., Sept. 26-28, 1973. Proceedings. Water pollution control in low density areas. Edited by W.J. Jewell, Hanover, N.H., University Press of New England, 1975, p.23-39, 7 refs.
Buzzell, T.D.
Waste treatment, Water pollution, Seepage, Surface drainage, Irrigation, Design criteria, Cost analysis.

35-2569
Water pollution and associated effects from street salting.
Field, R., et al, Rural Environmental Engineering Conference, Warren, Vermont, Sep. 26-28, 1973. Proceedings. Water pollution control in low density areas. Edited by W.J. Jewell and R. Swan, Hanover, N.H., University Press of New England, 1975, p.317-340, Refs. p.337-340.
Struzeski, E.J., Masters, H.E., Tafuri, A.N.
Water pollution, Salting, Chemical ice prevention, Environmental impact, Streets.

35-2570
Proceedings.
National Conference on Environmental Engineering, New York, July 8-10, 1980, New York, American Society of Civil Engineers, 1980, 707p., Refs. passim. For selected papers see 35-2571 through 35-2574.
Waste treatment, Water treatment, Sanitary engineering, Land reclamation, Flooding, Irrigation, Vegetation, Growth, Cost analysis.

35-2571
Rational design of overland flow systems.
Martel, C.J., et al, MP 1400, National Conference on Environmental Engineering, New York, July 8-10, 1980. Proceedings, New York, American Society of Civil Engineers, 1980, p.114-121, 9 refs.
Adrian, D.D., Jenkins, T.F., Peters, R.E.
Waste treatment, Water treatment, Flooding, Hydraulics, Grasses, Slopes, Runoff, Seepage, Time factor, Design.

35-2572
Energy and costs for agricultural reuse of wastewater.
Sletten, R.S., et al, MP 1401, National Conference on Environmental Engineering, New York, July 8-10, 1980. Proceedings, New York, American Society of Civil Engineers, 1980, p.339-346, 9 refs.
Reed, S.C., Middlebrooks, E.J.
Water treatment, Waste treatment, Land reclamation, Seepage, Agriculture, Flooding, Sanitary engineering, Cost analysis.

35-2573
Forage grass growth on overland flow systems.
Palazzo, A.J., et al, MP 1402, National Conference on Environmental Engineering, New York, July 8-10, 1980. Proceedings, New York, American Society of Civil Engineers, 1980, p.347-354, 16 refs.
Martel, C.J., Jenkins, T.F.
Waste treatment, Water treatment, Flooding, Irrigation, Grasses, Chemical composition, Land reclamation, Slopes, Sanitary engineering.

35-2574
Spray application of wastewater effluent in a cold climate: performance evaluation of a full-scale plant.
Cassell, E.A., et al, MP 1403, National Conference on Environmental Engineering, New York, July 8-10, 1980. Proceedings, New York, American Society of Civil Engineers, 1980, p.820-826, 7 refs.
Meals, D.W., Bouzoun, J.R., Martel, C.J., Burroughs, W.A.
Waste treatment, Water treatment, Chemical composition, Land reclamation, Cold weather performance, Hydrology, Seasonal variations.

35-2575
National petroleum reserve--Alaska: marine transportation system analysis. Final report.
Macpherson, M., New York, N.Y., J.H. McMullen Associates, Inc., Oct 1980, 486p., PB81-105 041, 14p of refs. (D section)
Marine transportation, Ice conditions, Petroleum transportation, Icebreakers, Models, Crude oil, Cost analysis, Air cushion vehicles.

35-2576
Our climatic future: an ice-free Arctic Ocean?. (Notre avenir climatique un Océan Arctique libre de glaces?)
Flohn, H., *La météorologie*, Mar. 1979, Sér. 6, No.16, p.35-51, In French, 49 refs.
Climatic changes, Ice cover effect, Atmospheric composition, Air temperature, Sea ice.
In relation to the possibility of future climatic warming resulting in the disappearance of ice from the Arctic Ocean, the greenhouse effect of CO2 and trace gases in the atmosphere is examined by calculating the temperature change for various concentrations by means of two different models. A table is presented associating various paleoclimatic phases with temperature warmings produced by different virtual concentrations of CO2, as calculated by various models with actual CO2 concentrations. A fixed altitude of cloud tops in one model and a fixed temperature of the cloud top in the other are assumed. Key domains in the climatic system, which play an important role in internal change, are examined. The causes and time scale of a possible dissappearance of floating ice in the Arctic are discussed. The coexistence of an ice-free Arctic Ocean with a glaciated Antarctic Ocean at the end of the Tertiary is considered. The consequences of a strong hemispheric asymmetry of the general circulation are reviewed. (Auth.)

35-2577
NOAA Polar Orbiter data (TIROS-N and NOAA-6) users guide.
Kidwell, K.B., comp, Washington, D.C., National Oceanic and Atmospheric Administration, 1981, c115p.
Data processing, Storage, Spacecraft.
The Satellite Data Services Division (SDSD) of the National Climatic Center, in conjunction with the National Earth Satellite Service, has established a digital archive of data collected from the new generation of NOAA operational polar-orbiting satellites. This series of satellites commenced with TIROS-N (launched in October 1978) and NOAA-A (launched in June 1979 and renamed NOAA-6). It includes NOAA-A through G. Digital data from the SDSD polar orbiter archive are available in the form of CCTs (Computer Compatible Tape) which may contain complete level 1b data sets, selective extracts from Level 1b data sets or copies of NESS operational AVHRR or TOVS products. Hardcopy reproductions of the NESS polar orbiter image products are also available. General and specific characteristics of the TIROS-N and NOAA-6 instruments and orbits are discussed. Data characteristics of the Advanced Very High Resolution Radiometer and the TIROS Operational Vertical Sounder are described. The NOAA Polar Orbiter Level 1b Data Base that is archived by SDSD, and from which users may request data is discussed. SDSD presently archives several different types of NESS operational polar orbiter products. The products include atmospheric soundings, sea surface temperature, heat budget, and mapped/gridded AVHRR data. Specific NESS products which are available are listed.

35-2578
Deepwater vibrator operations—Beaufort Sea, Alaska, 1979 winter season.
Mertz, R.W., et al, *Geophysics*, Feb. 1981, 46(2), p.172-181.
Brooks, L.D., Lansley, M.
Seismic surveys, Sea ice, Beaufort Sea.

35-2579
Energy balance climate models.
North, G.R., et al, *Reviews of geophysics and space physics*, Feb. 1981, 19(1), p.91-121, Refs. p.119-121.
Cahalan, R.F., Coakley, J.A., Jr.
Heat balance, Ice sheets, Climate, Models.
An introductory survey of the global energy balance climate models is presented with an emphasis on analytical results. A sequence of increasingly complicated models involving ice cap albedo feedback processes is solved, and the solutions and their sensitivities are studied. The model parameterizations are examined critically in light of many current uncertainties. A seasonal model is used to study the effects of changes in orbital elements on the temperature field. A linear stability theorem and a complete nonlinear stability analysis are developed. Analytical solutions are also obtained for time dependent forced models driven by stochastic forcing processes. Lastly, a theory for the relation between natural fluctuations (climate noise) and climate sensitivity is stressed. (Auth.)

35-2580
Health aspects of water reuse in California.
Reed, S.C., *American Society of Civil Engineers. Environmental Engineering Division. Journal*, Apr 1979, 105(EE2), MP 1404, p.434-435, Discussion of a paper by J. Crook, Ibid., Aug. 1978, Proc. paper No 13928.
Waste treatment, Water treatment, Water pollution, Bacteria, Health, Aerosols, Land reclamation.

35-2581
Overland flow: removal of toxic volatile organics.
Jenkins, T.F., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Feb. 1981, SR 81-01, AD-A097 576, 34 refs.
Palazzo, A.J., Martel, C.J., Hare, H.E.
Waste treatment, Water treatment, Flooding, Land reclamation, Water chemistry, Organic wastes, Purification.
A small-scale overland flow system was studied to determine its effectiveness in reducing the levels of volatile trace organics in municipal wastewater. Chlorinated primary wastewater, water collected from the surface at various points downslope, and runoff were analyzed by gas chromatography/mass spectrometry using a purge and trap sampler. The results indicated that overland flow was effective in reducing the levels of these substances by 80-100% depending on the specific substance and the application rate. The removal mechanism was found to follow first order kinetics. The most likely mechanism to explain the observed behavior is volatilization. Comparison of the experimental results with theoretical prediction using published models resulted in reasonable agreement considering the complexity of the system compared to the model systems.

35-2582
Superstructure icing study.
Wise, J.L., et al, NOAA contract No. NA79-RAC00132, Anchorage, University of Alaska, Arctic Environmental Information and Data Center, Feb 1980, 10p. + figs., 8 refs.
Comiskey, A.L.
Icing, Offshore structures, Ice accretion, Ice forecasting, Sea spray.

35-2583
Improved enzyme kinetic model for nitrification in soils amended with ammonium. 1. Literature review.
Leggett, D.C., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Jan. 1980, CR 80-01, 20p., ADA-082 303, Refs. p.18-20.
Iskandar, I.K.
Waste treatment, Water treatment, Soil chemistry, Soil microbiology, Growth, Nitrification, Enzymes.
Previous research indicates that nitrification in pure cultures can be represented by Michaelis-Menten kinetics. However, the effects of temperature and especially pH have not been treated systematically in any of the previous reviews of the subject. The work reported here is an attempt to synthesize reported temperature and pH effects on nitrification and nitrifier growth rates. In addition we attempt to extend the principles of microbial kinetics to soils. Our work indicates that pH effects can be interpreted mechanistically as inhibitions by hydrogen and hydroxyl ions, nitrous acid, and ammonia. These are incorporated into the Michaelis-Menten expressions. It is also our observation that ammonium oxidizers in natural habitats are characterized by lower Michaelis constants than pure cultures. This is significant particularly in terms of their growth and activity in acid soils. Alternatively, we speculate that proliferation of ammonium oxidizers in acid soils is due to spatial heterogeneity of "pH" at the microsite level.

35-2584
Snow pads used for pipeline construction in Alaska, 1976: construction, use and breakup.
Johnson, P.R., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, July 1980, CR 80-17, 28p., ADA-090 521, 11 refs.
Collins, C.M.
Cold weather construction, Pipelines, Snow roads, Permafrost preservation, Snow strength, Soil trafficability, Environmental protection, Artificial snow.
Construction pads made of snow were used to build two sections of the Trans Alaska Pipeline and a small gas pipeline during the winter of 1975-76. Construction during the winter has become increasingly common in the Arctic. Surface travel and the use of heavy construction equipment on the unprotected tundra have been severely restricted, even during the winter, so the use of temporary winter roads and construction pads built of snow and ice has been advocated and is being adopted. The three snow construction pads mentioned above were the first snow roads and construction pads used on a large scale in Alaska. Snow roads and construction pads have two objectives: to protect the underlying vegetation and upper layers of the ground, and to provide a hard, smooth surface for travel and the operation of equipment. Several types have been built, and a brief discussion is given of their history and classification systems. The three snow construction pads used in construction of the Trans Alaska Pipeline and the small gas pipeline in 1975-76 were visited and observed while in use.

35-2585
Winter thermal structure, ice conditions and climate of Lake Champlain.
Bates, R.E., *U.S. Army Cold Regions Research and Engineering Laboratory*, Jan. 1980, CR 80-02, 26p., ADA-082 304, 7 refs.
Lake ice, Ice conditions, Thermal regime, Ice formation, Ice thermal properties, Water temperature, Meteorological data, Winter, Thermistors, Stefan problem.
Winter thermal structure and ice conditions in the land-fast ice cover of Lake Champlain were studied in detail for the winters of 1975-76 and 1976-77. The lake was instrumented to a depth of 9.5 m with a string of highly calibrated thermistors attached to an ice mooring system and connected to a data logger at Shelburne Point, Vermont, during the winter of 1975-76 and at Gordon Landing on Grand Isle, Vermont, during 1976-77. This data logger automatically recorded water temperatures from the surface of the lake through snow, ice and water vertical profiles to the bottom of the lake every four hours. Pertinent meteorological parameters are presented for the appropriate measurement sites during the two winter periods, November '75-April '76, and November '76-April '77. Computations were made of freezing degree days for both winters and correlated with ice formation dates. Predictions of ice growth, using the Stefan equation with an empirical coefficient, were correlated with actual ice growth. Documentation was made of the Lake Champlain Transportation Company's first attempt at wintertime navigation by ferry from Gordon Landing, Vermont, to Cumberland Head, New York, in a land fast ice cover during one of the coldest winters of this century.

35-2586
Revegetation at two construction sites in New Hampshire and Alaska.
Palazzo, A.J., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Jan. 1980, CR 80-03, 21p., ADA-082 305, 30 refs.
Rindge, S.D., Gaskin, D.A.
Revegetation, Sewage disposal, Land reclamation, Grasses, Gravel, Organic soils, Sludges, Nutrient cycle.
Revegetation techniques were investigated for gravel soils in cold regions. Two gravel soil test sites were established in Hanover, New Hampshire, and Fairbanks, Alaska. During three growing seasons, we studied the applicability and cost effectiveness of various nutrient sources and mulch materials. The nutrient sources included sewage sludge (40, 60 and 80 tons/acre) and commercial fertilizer (at 200, 400 and 600 lb/acre). The mulching materials were wood fiber mulch with various types of tackifiers, peat moss, and sewage sludge. The effects of refertilization during the second growing season were also studied.

35-2587
Asphalt concrete for cold regions; a comparative laboratory study and analysis of mixtures containing soft and hard grades of asphalt cement.
Dempsey, B.J., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Jan. 1980, CR 80-05, 55p., ADA-082 198, 39 refs.
Ingersoll, J., Johnson, T.C., Shahin, M.Y.
Bitumens, Bituminous concretes, Pavements, Cement admixtures, Tensile properties, Cracking (fracturing), Strain tests, Thermal effects, Viscosity, Trafficability.
Pavements containing soft asphalt cement have been shown in the past to be less susceptible to low-temperature contraction cracking, but more susceptible to traffic-load-associated distress in warm weather, than pavements with harder asphalt cements. This research comprised laboratory testing to determine the properties of asphalt-aggregate mixtures containing three

grades of asphalt cements, and analyses to project the performance of pavements containing each of the asphalts, in resisting thermally induced distress and traffic-associated distress From the results it is concluded that only the softest asphalt cement tested (AC 2.5) would perform satisfactorily in a cold climatic zone. The moderately soft (AC 5) and moderately hard (AC 20) asphalt cements showed little susceptibility to thermal cracking in a moderate and a warm climatic zone respectively The AC 2 5 and AC 5 asphalts are not recommended for use in warm climates, however owing to increased susceptibility to rutting under traffic.

35-2588

Maximum thickness and subsequent decay of lake, river and fast sea ice in Canada and Alaska.

Bilello, M A , *U S Army Cold Regions Research and Engineering Laboratory*, Feb. 1980, CR 80-06, 160p., ADA-084 488, 57 refs.

Ice cover thickness, Ice melting, Ice deterioration, Lake ice, River ice, Sea ice, Fast ice, Air temperature, Ice forecasting.

Weekly measurements of the thickness of lake river and fast sea ice made over a period of 10 to 15 years at 66 locations in Canada and Alaska are analyzed, and the portion of the data relating to maximum ice thickness and decay (i e. the decrease in ice thickness) is examined Ice thickness curves revealed individual patterns of ice decay, and comparisons between locations disclosed major contrasts in the amount of ice accretion and the times of maximum ice and ice clearance. Although many factors affect the ice decay process, this study investigates in detail the effect of thawing temperatures. Concurrent measurements of the air temperature at each location made it possible to analyze the relationship between accumulated thawing degree-days (ATDD) and ice cover decay. Other factors affecting ice ablation and breakup, such as snow-ice formation, snow cover depth, solar radiation and wind are also discussed

35-2589

Studies of the temperature-dependence of the brine content of sea ice by the pulse NMR method.

Mel'nichenko, N A , et al, *U S Army Cold Regions Research and Engineering Laboratory*, Feb 1981, TL 757, 6p., ADB-055 707L, Translated from Okeanologiia, 1979, 19(5), p.811-814. 12 refs.

Mikhallov, V.I., Chizhik, V.I.

Brines, Sea ice, Ice temperature, Temperature effects, Nuclear magnetic resonance, Ice thermal properties, Sea water, Water temperature.

The dependence of the brine content Q(b) in sea ice was studied by the pulse NMR method over a temperature range from -2 to -35C The value of Q(b) exhibits thermal hysteresis at temperatures between -20 and -35C. Possible explanations for the hysteresis effect are suggested. The feasibility of employing the method for practical application is discussed

35-2590

Radar video pulse device for measuring the thickness of sea ice as a new promising means of ice reconnaissance.

Finkel'shtein, M I., et al, *U S Army Cold Regions Research and Engineering Laboratory*, Mar 1981, TL 758, 16p., For Russian original see 34-3312. 7 refs

Lazarev, E.I.

Ice cover thickness, Ice surveys, Ice surface, Surface roughness, Radar echoes, Ice salinity.

A video pulse device for measuring the thickness of sea ice provides for the possibility of measuring th thickness of all basic types of sea and fresh-water ice for the purpose of ice reconnaissance. The video pulse measuring device provides for the possibility of determining the salinity and irregularities of ice, to distinguish ice of river or sea origin, etc. Experimental investigations and the first practical ice reconnaissance showed that the device developed opens new possibilities for instrumental ice reconnaissance

35-2591

1977 tundra fire at Kokolik River, Alaska.

Hall, D.K., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Aug. 1978, SR 78-10, 11p., ADA-062 439, 10 refs. For this paper from another source see MP 1125, 32-4577

Brown, J., Johnson, L.

Tundra, Fires, Vegetation, Damage, Thaw depth, Remote sensing, Spaceborne photography, LANDSAT.

During summer 1977 widespread fires occurred in northwest Alaska Through the use of Landsat imagery and ground studies, one such fire, at Kokolik River was examined The Kokolik fire was first reported on 26 July, and by the time it was extinguished had consumed 44 sq km of tundra vegetation. Streams and drainages contained the fire on several sides. Ground observations provided information on the intensity of the fire effects Depth of thaw by late August measured 35 4 cm in the burned areas and 26 6 cm in the unburned areas

35-2592

Disinfection of wastewater by microwaves.

Iskandar, I.K., et al, *U.S. Army cold Regions Research and Engineering Laboratory*, Jan. 1980, SR 80-01, 15p., ADA-082 174, 36 refs.

Parker, L., Madore, K., Gray, C., Kumai, M

Waste treatment, Water treatment, Microwaves, Bacteria, Disinfection.

Results from a laboratory study show that microwave energy can be used for disinfection of wastewater. The time required for destruction of bacteria by microwaves was reduced over that of conventional heating Destruction of wastewater bacteria and a cell suspension of of *E Coli* B was logarithmic after an initial lag phase, which was dependent upon the volume used Thermophilic *B stearothermophilus* cells were used to try to determine if the mechanism of destruction was thermal.

35-2593

Icebreaking concepts.

Mellor, M , *U.S. Army Cold Regions Research and Engineering Laboratory*, Jan. 1980, SR 80-02, 18p., ADA-082 175, 4 refs.

Ice breaking, Icebreakers, Ice cover thickness, Penetration, Ice cutting, Ice blasting, Marine transportation, Offshore structures.

Icebreaking concepts that have potential application in the protection of offshore structures and drillships are reviewed The concepts dealt with include conventional icebreaking by ships, icebreaking by air cushion vehicles, breaking against fixed structures, mechanical cutting with drag bit tools, blasting by high explosives, blasting with compressed gases or propellants, ice melting, thermal cutting, cutting with lasers, cutting with high pressure water jets, and unproven novel concepts Special emphasis is given to the specific energy requirements for the various methods

35-2594

Danish deep drill; progress report: February-March 1979.

Rand, J , *U S Army Cold Regions Research and Engineering Laboratory*, Jan. 1980, SR 80-03, 37p ADA-082 206.

Drilling, Ice coring drills, Ice cores, Glaciology, Design, Performance, Maintenance.

The "Danish Deep Drill" was developed at the University of Copenhagen. The drill, which will be used to obtain ice cores from the Greenland Ice Sheet, was tested at the U.S. Army Cold Regions Research and Engineering Laboratory The drill is battery-operated and has a down-hole microprocessor-based control section and a delicately balanced chip removal system It is a lightweight, electro-mechanical drill designed to obtain a 10 2-cm-diameter core in 2-m lengths There are potential problems in chip recovery and storage, malfunctions of the computer or batteries, leaks in the pressure chamber, spin-out or rotation of the drill, and the very close tolerances required by the drill design Tests are recommended that will help eliminate some of these potential problems and determine the drill's overall strengths and weaknesses. The drill is a very complex and delicate instrument that will require constant maintenance, modification and monitoring when in use

35-2595

Evaluation of ice deflectors on the USCG icebreaker *Polar Star*.

Vance, G.P., *U.S. Army Cold Regions Research and Engineering Laboratory*, Jan. 1980, SR 80-04, 37p. ADA-082 205.

Icebreakers, Propellers, Ice cover thickness, Ice navigation, Deflectors.

Model tests were carried out in the CRREL Ice Engineering Facility test basin on a 1-to-19 1 model of the USCG *Polar Star* (WAGB-10) to determine the effectiveness of several different devices that would eliminate or mitigate the ingestion of ice into the propeller slip stream Propeller RPM records and high-speed movies were obtained for each device in two thicknesses of ice and at two speeds Four devices were evaluated: large bilge keels, small bilge keels, bossing fins and propeller cages (called bird cages) The most effective concept appeared to be the bilge keels Open water power tests and structural analysis must now be carried out to determine the overall feasibility of these concepts.

35-2596

Post occupancy evaluation of a planned community in Arctic Canada.

Bechtel, R.B., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Feb. 1980, SR 80-06, 27p., ADA-082 162, 4 refs.

Ledbetter, C.B.

Urban planning, Houses, Site surveys, Buildings, Ecology, Habitability.

This report describes a post-occupancy evaluation of a small mining community in the high Arctic Providing superior housing, having wives work and integrating singles, Inuits (the indigenous people) and families successfully established a viable community. Fewer problems were encountered than is usual in other isolated cold regions communities The central focal point of the town, a large dome, was diluted by later construction of buildings housing separate recreational and social facilities Since the buildings are too costly to remove, the only method of restoring the focal point is to build connecting links at upper levels of the recreational buildings

35-2597

Some aspects of Soviet trenching machines.

Mellor, M., *U.S. Army Cold Regions Research and Engineering Laboratory*, Feb. 1980, SR 80-07, 13p., ADA-082 176, 1 ref.

Trenching, Frozen ground, Earthwork, Equipment, Design.

Technical characteristics of Soviet trenching machines are assessed and compared with those of similar machines built in the United States and Europe The report deals with transverse rotation machines and belt machines, considering rotor speeds and belt speeds, tool speeds, power/weight ratios, power density, traverse speeds, and effective mean cutting pressures The probable capabilities of Soviet machines for cutting frozen ground are assessed It is concluded that, while general design characteristics are satisfactory, construction and product development are weak, and performance in frozen ground is not expected to be impressive

35-2598

Regional distribution and characteristics of bottom sediments in Arctic coastal waters of Alaska.

Sellmann, P V , *U S. Army Cold Regions Research and Engineering Laboratory*, Apr. 1980, SR 80-15, 50p , ADA-084 922, Refs. p.31-50.

Subsea permafrost, Permafrost distribution, Bottom sediment, Marine geology, Sediment transport, Permafrost depth, Ice scoring, Offshore structures, Artificial islands, Construction materials, Offshore drilling.

This report includes a discussion of some of the properties and characteristics of offshore marine sediments found in the U S Beaufort Sea that could influence aspects of offshore development A collection of references is also included in an appendix Perennially and seasonally frozen sediments are extremely common, with variable distribution and properties The depth to the top of icebonded permafrost can be as little as 7 m below the seabed many kilometers from the sea coast The subsea permafrost can contain visible ground ice similar to that observed on land, and can be anticipated to cause problems at least as great as those experienced on land

35-2599

Estimating costs of ice damage to private shoreline structures on Great Lakes connecting channels.

Carey, K L , *U S Army Cold Regions Research and Engineering Laboratory*, May 1980, SR 80-22, 33p. ADA-089 781.

Structures, Damage, Ice loads, Impact strength, Ice pressure, Ice navigation, Cost analysis.

The possible extension of the navigation season through the entire winter or a portion thereof has been under consideration for the Great Lakes and the St Lawrence Seaway for a number of years. To balance the benefits and costs of such an extension it is necessary to determine the damage costs to shore structures that might result from ice loosened by ship passage. This paper is concerned with the interconnecting channels of the Lakes where there is estimated to be $18,000,000 (1976 dollars) worth of small, private, vulnerable shore structures

35-2600

Post occupancy evaluation of a remote Australian community: Shay Gap, Australia.

Bechtel, R.B., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, July 1980, SR 80-29, 57p , ADA-089 675, 8 refs.

Ledbetter, C.B.

Urban planning, Houses, Buildings, Site surveys, Ecology, Psychology, Habitability.

A post occupancy evaluation (POE) was made of Shay Gap, an iron mining community in Western Australia. More than 50 design hypotheses were tested with results favoring the original design Selecting a townsite surrounded by hills was deemed successful by residents. Keeping automobiles out of the living areas increased the safety of children and made residents walk and socialize more. A centrally located building housing the shopping facilities, beauty parlor, bank, post office, and snack bar served as the focal point of the community Bland, off-white interiors allowed residents to express themselves when decorating Shay Gap was a successful design concept for communities designed for remote areas in either hot or cold regions

35-2601

Dynamic testing of free field stress gages in frozen soil.

Aitken, G.W., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, July 1980, SR 80-30, 26p., ADA-089 676, 6 refs.

Albert, D.G., Richmond, P.W.

Frozen ground mechanics, Stresses, Impact tests, Shock waves, Soil mechanics, Wave propagation.

This report describes an attempt to develop a procedure for dynamic calibration of free-field soil stress gages embedded in a soil sample The method presented utilizes a drop-type impact testing machine and a small, instrumented container of soil The velocity history of a shock pulse applied to the soil sample is measured and the applied stress computed, this value is then compared with data obtained from stress gages embedded in the soil The results showed that the procedure is adequate for unfrozen soil, but for frozen soil the accuracy in the measurement of compressional wave velocity needs to be increased to obtain useful results

35-2602

Effects of a tundra fire on soils and plant communities along a hillslope in the Seward Peninsula, Alaska.

Racine, C., *U.S. Army Cold Regions Research and Engineering Laboratory*, Nov. 1980, SR 80-37, 21p., ADA-094 6607, 21 refs.

Tundra, Fires, Damage, Soils, Plants (botany), Vegetation, Slopes.

During summer 1977, wildfires burned extensive areas of low arctic tundra in the Seward Peninsula, Alaska The present study was initiated in July 1978 to determine the effects of these fires on tundra soils and vegetation Nine 10- x 1-m permanent transects were established at regular intervals along the topographic gradient of a burned hillslope in the central Seward

Peninsula near Imuruk Lake. Soil characteristics and plant species density and cover were determined in each of the 90 1-x 1-m plots on this slope during July of both 1978 and 1979.

35-2603
Thermal diffusivity of frozen soil.
Haynes, F.D., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Dec. 1980, SR 80-38, 30p., ADA-094 605, 10 refs.
Carbee, D.L., VanPelt, D.J.
Frozen ground physics, Thermal diffusion, Thermal conductivity, Specific heat, Heat transfer, Temperature effects, Density (mass/volume), Soil water, Permafrost physics.
Knowledge of the thermal diffusivity of frozen soils is necessary for transient heat transfer analysis. The specific heat, thermal conductivity and density for a sand, a silt and a clay were obtained experimentally and used to calculate their thermal diffusivity. These properties were measured over a range of temperatures from -50 C to +45 C and for moisture contents from dry to saturated. The use of a differential scanning calorimeter for obtaining specific heat values was proven to be a reliable technique.

35-2604
Proceedings of a scientific conference of the Institute of Biology. [Materialy nauchnoĭ konferentsii Instituta biologii],
Zaboeva, I.V., ed, Syktyvkar, 1971, 124p., In Russian.
For selected papers see 35-2605 through 35-2612.
DLC QH305.2.R9A64
Forest tundra, Swamps, Taiga, Biomass, Litter, Revegetation, Cryogenic soils, Podsol, Soil temperature, Soil moisture migration, Soil chemistry, Nutrient cycle, Thermal regime, Solar radiation, Heat balance.

35-2605
Meadows of the forest tundra river Yun'-Yakhi. [Luga lesotundrovoĭ reki IUn'-IAkhi],
Bratenkova, E.S., et al, Materialy nauchnoĭ konferentsii Instituta biologii (Proceedings of a scientific conference of the Institute of Biology) edited by I.V. Zaboeva, Syktyvkar, 1971, p.5-7, In Russian.
Kotelina, N.S.
DLC QH305.2.R9A64
Forest tundra, Meadows, Swamps, Landscape types, Plant ecology, Ecosystems.

35-2606
Biologic premises for a rational utilization of forest tundra meadows. [Biologicheskie predposylki ratsional'nogo ispol'zovaniia lugov lesotundry],
Kotelina, N.S., Materialy nauchnoĭ konferentsii Instituta biologii (Proceedings of a scientific conference of the Institute of Biology) edited by I.V. Zaboeva, Syktyvkar, 1971, p.14-16, In Russian.
DLC QH305.2.R9A6
Forest tundra, Meadows, Swamps, Biomass.

35-2607
Agrobiologic basis for creating cultivated pastures in the central taiga of Komi ASSR. [Agrobiologicheskie osnovy sozdaniia kul'turnogo pastbishcha v podzone srednei taĭgi Komi ASSR],
Koiushev, I.A., Materialy nauchnoĭ konferentsii Instituta biologii (Proceedings of a scientific conference of the Institute of Biology) edited by I.V. Zaboeva, Syktyvkar, 1971, p.16-17, In Russian.
DLC QH305.2.R9A64
Taiga, Meadows, Biomass, Introduced plants, Grasses.

35-2608
Surface biomass of woody plants in the northern green-moss-type taiga. [Nadzemnaia fitomassa drevesnykh rasteniĭ v zelenomoshnykh tipakh lesa v severnoĭ podzone taĭgi],
Nadutkin, V.D., et al, Materialy nauchnoĭ konferentsii Instituta biologii (Proceedings of a scientific conference of the Institute of Biology) edited by I.V. Zaboeva, Syktyvkar, 1971, p.50-51, In Russian.
Modianov, A.N.
DLC QH305.2.R9A64
Taiga, Cryogenic soils, Trees (plants), Biomass, Forestry, Revegetation.

35-2609
Hydrothermal and physical properties of soils in green-moss pine forests and mixed conifer-foliate young growth of northern taiga. [Teplovye i vodno-fizicheskie svoĭstva pochv sosniakov zelenomoshnikov i smeshannykh khvoĭno-listvennykh molodniakov podzony severnoĭ taĭgi],
Verkholantseva, L.A., Materialy nauchnoĭ konferentsii Instituta biologii (Proceedings of a scientific conference of the Institute of Biology) edited by I.V. Zaboeva, Syktyvkar, 1971, p.51-53, In Russian.
DLC QH305.2.R9A64
Taiga, Soil temperature, Cryogenic soils, Solar radiation, Heat balance, Soil moisture migration, Heat transfer.

35-2610
Peculiarities of soil processes in the far northern taiga. [Nekotorye osobennosti pochvennykh protsessov v podzone kraine-severnoĭ taĭgi],
Zaboeva, I.V., et al, Materialy nauchnoĭ konferentsii Instituta biologii (Proceedings of a scientific conference of the Institute of Biology) edited by I.V. Zaboeva, Syktyvkar, 1971, p.58-59, In Russian.
Tsypanova, A.N.
DLC QH305.2.R9A64
Taiga, Cryogenic soils, Podsol, Soil temperature, Soil moisture migration, Thermal regime, Soil chemistry.

35-2611
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Glacial till, Stratigraphy.

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Geochemistry, Geophysical surveys, Glacial geology, Soil chemistry.

35-2737
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Glacial till, Geologic structures, Geochemistry, Minerals.

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DLC TN270.A1P77
Lakes, Sediments, Geochemistry, Minerals.

35-2740
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DLC TN270.A1P78
Meetings, Geochemistry, Geophysical surveys, Glacial geology.

35-2742
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Geophysical surveys, Geochemistry, Ground water, Surface waters, Sediments.

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Exploration, Glacial till, Minerals, Radioactivity.

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Drilling, Equipment, Glacial till, Minerals.

35-2745
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Exploration, Geologic structures, Photogeology, Finland.

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DLC TN270.A1P78
Rocks, Glacial till, Minerals, Geophysical surveys.

35-2748
Nickel prospecting and the discovery of the Mjövattnet mineralization, northern Sweden: a case history of the use of combined techniques in drift covered glaciated terrain.
Nilsson, G., Prospecting in areas of glacial terrain, edited by M.J. Jones, London, Institution of Mining and Metallurgy, 1973, p.97-109, 23 refs., Symposium organized by IMM, Trondheim, Norway, Aug. 21-22, 1973.
DLC TN270.A1P78
Glacial till, Minerals, Rocks, Geologic structures, Exploration.

35-2749
Exploration for disseminated lead in southern Norway.
Björlykke, A., et al, Prospecting in areas of glacial terrain, edited by M.J. Jones, London, Institution of Mining and Metallurgy, 1973, p.111-126, 25 refs., Symposium organized by IMM, Trondheim, Norway, Aug. 21-22, 1973.
Bölviken, B., Eidsvig, P., Svinndal, S
DLC TN270.A1P78
Exploration, Minerals, Mining, Norway.

35-2750
On the angular variation of solar reflectance of snow.
Choudhury, B.J., et al, *Journal of geophysical research,* Jan. 20, 1981, 86(C1), p.465-472, 35 refs.
Chang, A.T.C.
Snow optics, Solar radiation, Sunlight, Reflectivity.

35-2751
Cost-effective use of municipal wastewater treatment ponds.
Reed, S C., et al, MP 1413, Session on Appropriate Technology in Water Supply and Waste Disposal at the ASCE National Convention, Chicago, Illinois, Oct. 16-20, 1978. ASCE preprint 3435, New York, American Society of Civil Engineers, 1979, p.177-200, 23 refs.
Hais, A.B.
Waste treatment, Water treatment, Ponds, Cost analysis, Statistical analysis, Design.
Treatment ponds are a cost-effective alternative for municipal wastewater treatment. When compared to other secondary treatment alternatives, ponds are generally the least costly, require less energy and less skilled operational attention. They can be designed to consistently meet BOD removal requirements and can achieve significant reductions in nutrients, bacteria, and viruses.

35-2752
Land treatment systems and the environment.
McKim, H.L., et al, MP 1414, Session on Appropriate Technology in Water Supply and Waste Disposal, at the ASCE National Convention, Chicago, Illinois, Oct. 16-20,1978 ASCE preprint 3453, New York, American Society of Civil Engineers, 1979, p.201-225, 47 refs.
Bouzoun, J.R., Martel, C.J., Palazzo, A.J., Urban, N.W.
Waste disposal, Water treatment, Land reclamation, Seepage, Flooding, Waste treatment, Environmental protection.

35-2753
Piles in permafrost for bridge foundations.
Crory, F.E., et al, MP 1411, ASCE Structural Engineering Conference, Seattle, Washington, May 8-12, 1967. *Conference preprint 522,* [1967], 41p., *6 refs.*
Matlock, C.S.
Permafrost beneath rivers, Pile driving, Foundations, Bridges, Permafrost preservation, Bearing strength, Settlement (structural), Soil temperature, Design criteria, Frost heave, Countermeasures, Streams.
This cooperative research study has focused considerable attention on the ground temperatures existing beneath and adjacent to streams in permafrost areas An appreciation of the changes in the thaw area beneath the stream, both at the time of construction and for the life of the structure, is essential to proper siting of the bridge foundation. Location of abutments and piers outside of the potential thaw zone of the stream, or penetration at the most advantageous points to depths sufficient to achieve the required bearing capacity, is essential. The design of piles based on depth of embedment, adfreeze strength or dynamic driving formulas in frozen soils is of little value if the permafrost condition is later destroyed. Emphasis must be placed on retaining the original permafrost conditions and providing for frost action.

35-2754
Estimation of heat and mass fluxes over Arctic leads.
Andreas, E.L., *Monthly weather review,* Dec 1980, 108(12), MP 1410, p.2057-2063, 26 refs
Polynyas, Sea ice, Heat transfer, Mass transfer, Turbulent exchange, Heat flux, Analysis (mathematics).
Recent work on the turbulent transfer of scalar quantities following a step increase in the surface value of the scalar is directly applicable to the problem of estimating heat and mass transfer from Arctic leads in winter With the transfer relations, turbulent fluxes can be computed from standard meteorological observables; and from the Nusselt number equality, partitioning of the turbulent fluxes can be evaluated—in particular, the partitioning of the heat flux between sensible and latent components

35-2755
Unfrozen water contents of submarine permafrost determined by nuclear magnetic resonance.
Tice, A.R., et al, MP 1412, International Symposium on Ground Freezing, 2nd, Trondheim, Norway, June 24-26, 1980, Trondheim, 1980, p.400-412, 10 refs.
Anderson, D.M., Sterrett, K.F.
Subsea permafrost, Unfrozen water content, Nuclear magnetic resonance, Frozen ground temperature, Freezing points.
Prior work resulted in the development of techniques to measure the unfrozen water contents in frozen soils by nuclear magnetic resonance (NMR) The NMR technique makes it possible, in a non-destructive, non intrusive way, to explore hysteresis by determining both cooling and warming curves. Corrections are made for dissolved paramagnetic impurities which have the effect of increasing the signal intensity at decreasing temperatures. The results demonstrate that NMR techniques can be effectively utilized both at and below the melting point of ice in frozen soils and that accurate melting points (freezing point depressions) can be determined.

35-2756
Analysis of water in the Martian regolith.
Anderson, D.M., et al, *Journal of molecular evolution,* 1979, Vol.14, MP 1409, p.33-38, 9 refs.
Tice, A.R.
Mars (planet), Soil water, Adsorption, Water vapor, Thermodynamics, Soil microbiology, Temperature effects.
One of the scientific objectives of the Viking Mission to Mars was to accomplish an analysis of water in the Martian regolith. The analytical scheme originally envisioned was severely compromised in the latter stages of the Lander instrument package design The presence of a duricrust at one of the Lander sites is taker as possible evidence for the presence of hygroscopic minerals on Mars The demonstrated presence of atmospheric water vapor and thermodynamic calculations lead to the belief that adsorbed water could provide a relatively favorable environment for endolithic organisms on Mars similar to types recently discovered in the dry antarctic deserts.

35-2757
Selected design parameters of existing systems for land application of liquid waste—a computer file.
Iskandar, I.K., MP 1415, Annual Conference of Applied Research and Practice on Municipal and Industrial Waste, 2nd, Madison, Wisconsin, Sep. 17-21, 1979. *Proceedings, 1979, p.65-88, 5 refs.*
Waste treatment, Water treatment, Land reclamation, Computer programs, Design.
Due to increasing interest in renovating wastewater by application on land, a computer file was established to store and retrieve information on design parameters, performance characteristics and published information on existing land application systems The purpose of establishing this file was to provide assistance to design engineers during the planning of new land treatment systems Currently there are about 350 domestic and 75 foreign systems on file. Two hypothetical examples are included for illustration.

35-2758
Pothole primer; a public administrator's guide to understanding and managing the pothole problem.
Eaton, R , coord, MP 1416, Hanover, N H , U S Army CRREL, [1981], 24p., 9 refs Preliminary draft for presentation at the 11th Annual New England Asphalt Paving Conference, University of New Hampshire, Durham, N.H., 17 March 1981.
Bilello, M.A.
Road maintenance, Pavements, Damage, Frost action, Municipal engineering, Safety, Fatigue (materials), Drainage, Cracking (fracturing).

35-2759
EPA policy on land treatment and the Clean Water Act of 1977.
Thomas, R.E., et al, *Journal of water pollution control,* Mar. 1980, 52(3), MP 1418, p.452-460, 10 refs.
Reed, S.C.
Waste treatment, Water treatment, Land reclamation, Legislation, Water pollution, Design.

35-2760
Land treatment: present status, future prospects.
Pound, C.E., et al, *Civil engineering*, June 1978, 48(6), MP 1417, p.98-102. Also in: Articles on water and waste treatment, pollution control and related subjects. Reprinted from Civil engineering, Sep. 1977 through Sep. 1978, [1979], p 76-80.
Crites, R.W., Reed, S.C.
Land reclamation, Sewage treatment, Waste treatment, Water treatment, Legislation, Water pollution, Cost analysis.

35-2761
Nongley hydromorphic soil formation.
Sokolov, I.A., *Soviet soil science*, Jan.-Feb. 1980, p.17-28, Translated from Pochvovedenie 7 refs.
Cryogenic soils, Forest soils, Permafrost depth, Taiga, Soil profiles, Soil formation, Soil composition, Permafrost.

35-2762
Differentiation within horizons and along the profile of a surficially gleyey loam in the low shrub tundra.
Sloboda, A.V., *Soviet soil science*, Jan.-Feb 1980, No.2, p.29-40. Translated from Pochvovedenie. 21 refs.
Tundra, Landscape types, Soil profiles, Cryogenic soils, Soil composition, Soil formation.

35-2763
Variety of forms of nongley hydromorphic soil formation.
Sokolov, I.A., *Soviet soil science*, Jan.-Feb. 1980, No.2, p.41-55, Translated from Pochvovedenie 3 refs.
Cryogenic soils, Thixotropy, Taiga, Permafrost depth, Soil profiles, Soil composition, Soil chemistry.

35-2764
Modeling the movement of a ship in continuous ice field and in broken ice. [Modelirovanie dvizheniia sudna v sploshnom ledianom pole i bitykh l'dakh],
Nogid, L.M., *Leningrad. Korablestroitel'nyi institut. Trudy*, 1959, Vol.28, p.45-62, In Russian. 4 refs.
Ice navigation, Icebreakers, Ice breaking, Ice cover thickness, Ice friction, Models.

35-2765
Technical equipment for the North. [Tekhnika Severa],
Cherskii, N., *Nauka i zhizn'*, Feb. 1981, No.2, p.26-28, In Russian.
Construction equipment, Transportation, Helicopters, Tundra, Forest tundra.

35-2766
Time for the formation of organic matter in the second humic zone of soddy-podsolic soils. [Vremia formirovaniia organicheskogo veshchestva vtorogo gumusovogo gorizonta vtorichno-podzolistykh pochv],
Tolchel'nikov, IU.S., et al, *Akademiia nauk SSSR. Doklady*, Nov.-Dec. 1980, 255(6), p.1475-1478, In Russian. 13 refs.
Kostarev, A.S., Tereshenkova, I.A.
Soil formation, Age determination, Cryogenic soils, Soil profiles, Soil composition.

35-2767
New data on the Early Holocene marine sediments and ice veins in the West of the October Revolution Island (Severnaya Zemlya Archipelago). [Novye dannye o rannegolotsenovykh morskikh osadkakh i ledianykh zhilakh na zapade o. Oktiabr'skoi Revoliutsii (Arkhipelag Severnaia Zemlia)],
Kostiaev, A.G., et al, *Akademiia nauk SSSR. Doklady*, Jan.-Feb. 1981, 256(1), p.183-187, In Russian 9 refs.
Periglacial processes, Ground ice, Permafrost structure, Ice veins, Paleoecology, Ice structure, Age determination.

35-2768
Development of wild rosemary under different ecological conditions. [Ontogenez bagul'nika steliushchegosia v razlichnykh ekologicheskikh usloviiakh],
Mazurenko, M.T., *Ekologiia*, Jan.-Feb. 1981, No.1, p.27-32, In Russian. 4 refs.
Vegetation, Plant ecology, Arctic landscapes, Subarctic landscapes.

35-2769
Vegetation effect on hydrothermal regime of tundra soils in the northern Yenisey River area. [Vliianie rastitel'nosti na vodno-teplovoi rezhim gruntov v tundre Eniseiskogo Severa],
Skriabin, S.Z., et al, *Ekologiia*, Jan.-Feb. 1981, No.1, p.82-86, In Russian. 4 refs.
Skriabin, P.N., Sergeev, B.P.
Tundra, Environmental protection, Cryogenic soils, Soil temperature, Permafrost hydrology, Landscape types, Hydrothermal processes, Soil water migration, Human factors, Vegetation factors, USSR—Yenisey River.

35-2770
Temperature spectrum of ground water crystallization. [Spektr temperatur kristallizatsii gruntovoi vody],
Lev, V.D., et al, *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura*, 1980, No.12, p.16-20, In Russian. 13 refs.
Zelinger, F.F., Sennikov, S.I.
Frozen fines, Soil freezing, Frost penetration, Soil water migration, Phase transformations, Unfrozen water content, Frozen ground temperature.

35-2771
Calculating the cooling of concrete placed at subzero temperatures. [Raschet okhlazhdeniia svezheulozhennogo betona pri otritsatel'noi temperature vozdukha],
Zubkov, V.I., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura*, 1980, No.12, p.99-104, In Russian. 5 refs.
Winter concreting, Concrete placing, Cooling rate, Concrete freezing, Concrete hardening, Hydraulic structures, Dams.

35-2772
Experience in predicting elements of the ice and thermal regime of the lower pools of hydroelectric stations.
Nazarenko, S.N., et al, *Hydrotechnical construction*, Sep. 1980, No.9, p.945-949, Translated from Gidrotekhnicheskoe stroitel'stvo. 4 refs.
Kozhevnikova, T.E., Sulimova, L.I.
Rivers, Ice conditions, Hydraulic structures, Ice jams, Ice forecasting, Polynyas, Electric power, Water temperature.

35-2773
Experience in building water intake complexes. [Opyt stroitel'stva kompleksa vodozabornykh sooruzhenii],
Medvedev, T.A., *Neftepromyslovoe stroitel'stvo*, 1981, No.3, p.4-5, In Russian.
Water intakes, Cold weather construction, Winter concreting, Cold weather operation, Icing, Frazil ice.

35-2774
Using helicopters in power line construction in the central Ob' River swamps. [Ispol'zovanie vertoletov pri stroitel'stve vozdushnykh linii elektroperedachi na bolotakh Srednego Prob'ia],
Nabutovskii, V.I., *Neftepromyslovoe stroitel'stvo*, 1981, No.3, p.13-14, In Russian.
Swamps, Cold weather construction, Transportation, Helicopters.

35-2775
New method of pipeline construction. [Novyi sposob sooruzheniia truboprovodov],
Kagan, IA.M., et al, *Neftepromyslovoe stroitel'stvo*, 1981, No.3, p.15-16, In Russian.
Petroleum industry, Pipe laying, Transportation, Swamps.

35-2776
Building industrial pipelines in western Siberia. [Prokladka promyslovykh truboprovodov v usloviiakh Zapadnoi Sibiri],
Sokolov, S.M., et al, *Neftepromyslovoe stroitel'stvo*, 1980, No.11, p.2-4, In Russian. 3 refs.
Shcherbinin, I.A.
Pipelines, Swamps, Peat, Frozen fines, Permafrost beneath structures.

35-2777
Using synthetic textile materials in the construction of roads and foundations in cluster-drilling areas of western Siberia. [Ispol'zovanie sinteticheskikh tekstil'nykh materialov pri stroitel'stve avtomobil'nykh dorog i osnovanii pod kusty skvazhin v Zapadnoi Sibiri],
Tabakov, N.V., et al, *Neftepromyslovoe stroitel'stvo*, 1980, No.11, p.4-7, In Russian.
Simonenko, V.S., Kazarnovskii, V.D.
Petroleum industry, Roads, Foundations, Construction materials, Swamps, Roadbeds, Soil stabilization.

35-2778
Performance of industrial pipelines in frozen grounds. [Issledovanie uslovii raboty promyslovykh truboprovodov v merzlykh gruntakh],
Sokolov, S.M., et al, *Neftepromyslovoe stroitel'stvo*, 1980, No.11, p.8-12, In Russian. 2 refs.
Karavaev, S.S., Pervushin, G.G.
Petroleum industry, Pipelines, Permafrost beneath structures, Peat, Frozen fines, Permafrost depth, Permafrost thickness, Heat transfer, Soil temperature.

35-2779
Hydraulic models for studying temperature fields beneath embankments. [Ispol'zovanie metoda gidravlicheskogo modelirovaniia pri formirovanii temperaturnykh polei pod nasypiami],
Vasserman, S.N., et al, *Neftepromyslovoe stroitel'stvo*, 1980, No.11, p.12-15, In Russian. 1 ref.
Shemiakin, S.A., Bezrukov, V.F., Konoshko, V.V.
Embankments, Earth dams, Permafrost beneath structures, Foundations, Thermal regime, Frozen ground, Peat, Sands.

35-2780
Improving the design of oil field roads in western Siberia. [Sovershenstvovanie proektnykh reshenii na stroitel'stvo neftepromyslovykh avtomobil'nykh dorog Zapadnoi Sibiri],
Tabakov, N.V., et al, *Neftepromyslovoe stroitel'stvo*, 1980, No.11, p.15-19, In Russian.
Chudinovskikh, A.G.
Petroleum industry, Roads, Roadbeds, Swamps, Permafrost beneath structures, Cost analysis, Ice roads, Snow roads.

35-2781
Calculating the decrease of soil temperature beneath thermopile foundations. [Raschet ponizheniia temperatury grunta v osnovanii sooruzheniia vozvodimogo s primeneniem termosvai],
Gorelik, IA.B., et al, *Neftepromyslovoe stroitel'stvo*, 1980, No.11, p.19-20, In Russian. 1 ref.
Mel'tser, M.S.
Foundations, Permafrost beneath structures, Permafrost control, Thermopiles, Soil temperature, Cooling rate.

35-2782
Using design schemes of pipelines built on elastic foundations in western Siberia. [Ispol'zovanie raschetnykh skhem truboprovodov na uprugom osnovanii v usloviiakh Zapadnoi Sibiri],
Sokolov, S.M., et al, *Neftepromyslovoe stroitel'stvo*, 1980, No.11, p.21-23, In Russian.
Pervushin, G.G., Tur, V.M.
Pipelines, Foundations, Swamps.

35-2783
Selecting foundations for power line supports allowing for the engineering-geological characteristics of South Yakutia. [Vybor fundamentov opor VL s uchetom osobennostei inzhenerno-geologicheskikh kharakteristik IUzhno-IAkutskogo regiona],
Tkachenko, A.A., et al, *Energeticheskoe stroitel'stvo*, Mar. 1981, No.3, p.46-49, In Russian.
Volkov, G.I.
Power line supports, Foundations, Permafrost beneath structures, Frozen fines, Permafrost bases, Permafrost control.

35-2784
Environmental protection in the North. [Okhrana prirody Severa],
Denisov, G.V., *Stroitel'stvo truboprovodov*, Mar. 1981, No.3, p.29, In Russian.
Gas pipelines, Permafrost beneath structures, Environmental protection, Soil erosion, Cryogenic soils.

35-2785
Accelerated construction of compressor stations in West Siberia. [Skorostnoe stroitel'stvo kompressornykh stantsii v Zapadnoi Sibiri],
Poniatovskii, V.A., *Stroitel'stvo truboprovodov*, Mar. 1981, No.3, p.30, in Russian.
Petroleum industry, Buildings, Gas pipelines, Compressors, Construction materials, Frozen ground.

35-2786
Thermal regime of ground with thermally conductive inserts. [Teplovoi rezhim v grunte s teploprovodnoi vstavkoi],
Andreev, V.V., et al, *Stroitel'stvo truboprovodov*, Mar. 1981, No.3, p.33-35, In Russian. 3 refs.
Bronfenbrener, L.V., Bronnikova, N.A.
Soil temperature, Soil water migration, Soil freezing, Concrete piles, Stefan problem.

35-2787
Construction sites of West Siberia. (Na stroikakh Zapadnoĭ Sibiri). *Stroitel'stvo truboprovodov*, Feb. 1981, No.2, p.13, In Russian.
Photography, Pipelines, Transportation, Helicopters, Taiga, Swamps.

35-2788
Experience and prospects for the development of pipeline transport in West Siberia. (Opyt i perspektivy razvitiia truboprovodnogo transporta v Zapadnoĭ Sibiri).
Kurbatov, N.I., *Stroitel'stvo truboprovodov*, Feb. 1981, No.2, p.14-16. In Russian.
Pipelines, Construction equipment, Cost analysis, USSR—Siberia.

35-2789
Improving the design of individual units for set-block construction. (Sovershenstvovanie stroitel'nykh konstruktsiĭ dlia komplektno-blochnogo stroitel'stva).
Rubinshtein, A.B., *Stroitel'stvo truboprovodov*, Feb. 1981, No.2, p.24-25, In Russian.
Modular construction, Buildings, Compressors, Pumps, Pipelines, Thermal insulation, Reinforced concretes, Panels, Prefabrication, Design.

35-2790
Ductless hot-water pipelines in the North. (O primenenii beskanal'noĭ prokladki teploprovodov v usloviiakh Severa).
Sobolev, V.G., et al, *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedeniĭ. Stroitel'stvo i arkhitektura*, 1981, No.1, p.126-129. In Russian. 8 refs.
Koshelev, A.A.
Heating, Water pipelines, Permafrost beneath structures, Thaw depth, Thermal insulation, Buildings, Cost analysis.

35-2791
Advancing the state-of-the-arts, thermal insulations and moisture retarders.
Fettsma, G.J., *ASHRAE journal*, Mar. 1981, 23(3), p.32.
Thermal insulation, Buildings, Moisture, Countermeasures, Thermal regime.

35-2792
Early Miocene subglacial basalts, the East Antarctic ice sheet, and uplift of the Transantarctic Mountains.
Stump, E., et al, *Science*, Feb. 15, 1980, 207(4432), p.757-759, 21 refs.
Sheridan, M.F., Borg, S.G., Sutter, J.F.
Ice sheets, Glacial geology, Geomorphology, Glaciation, Rocks, Radioactive age determination, Glacial deposits, Volcanoes, Tectonics, Paleoclimatology, Antarctica—Transantarctic Mountains.

35-2793
Papers.
Technology Transfer Seminar on Effluent Irrigation under Prairie Conditions, Regina, Saskatchewan, Jan. 24-25, 1979, Canada, Environmental Protection Service, (1979), var.p., Refs. passim. For selected papers see 35-2794 and 35-2795.
Waste disposal, Water treatment, Land reclamation, Irrigation, Waste treatment, Canada.

35-2794
International and national developments in land treatment of wastewater.
McKim, H.L., et al, MP 1420, Technology Transfer Seminar on Effluent Irrigation under Prairie Conditions, Regina, Saskatchewan, Jan. 24-25, 1979. Papers, Canada, Environmental Protection Service, (1979), 28p., 58 refs.
Jenkins, T.F., Martel, J., Palazzo, A.J.
Waste treatment, Water treatment, Land reclamation, Ponds, Irrigation, International cooperation.

35-2795
Effluent irrigation developments in Canada.
Oldham, W.K., Technology Transfer Seminar on Effluent Irrigation under Prairie Conditions, Regina, Saskatchewan, Jan. 24-25, 1979. Papers, Canada, Environmental Protection Service, (1979), 6p.
Waste treatment, Water treatment, Land reclamation, Irrigation, Climatic factors, Canada.

35-2796
Traveling wave solution to the problem of simultaneous flow of water and air through homogeneous porous media.
Nakano, Y., *Water resources research*, Feb. 1981, 17(1), MP 1419, p.57-64, 16 refs.
Porous materials, Water flow, Air flow, Wave propagation, Hydraulics, Boundary layer, Wettability, Analysis (mathematics).
A traveling wave solution was derived for the problem of simultaneous flow of water and air through homogeneous porous media. The properties of the solution generally depend upon the hydraulic characteristics of a given problem. The properties of the solution are presented for a specific case in which the hydraulic characteristics are given in specific functional forms. For this specific case a singularity occurs in the solution of both a saturated-unsaturated boundary and a wetting front. Some applications of the solution are discussed.

35-2797
Effect of snowmelt on the quality of Filson Creek and Omaday Lake, northeastern Minnesota.
Sigel, D.I., *Water resources research*, Feb. 1981, 17(1), p.238-242, 23 refs.
Snowmelt, Streams, Lake water, Surface waters, Soil water, Hydrogen ion concentration, Watersheds.

35-2798
Snow scooter and cross country vehicle as farmers' wood transport vehicles. (Moottorikelkka ja telemaasturi "isännän linjan" metsäkoneinaj.
Halttunen, J., et al, *Teho*, 1981, No.1, p.28-30, In Finnish. English summary, p.46. 5 refs.
Taravasmäki, P.
Snow vehicles, Transportation, Finland.

35-2799
Some basic experiments with a vertically-integrated ice sheet model.
Oerlemans, J., *Tellus*, Feb. 1981, 33(1), p.1-11, In English with Russian summary. 17 refs.
Ice sheets, Ice mechanics, Ice creep, Ice cover thickness, Glacier flow, Glacier mass balance, Ice models, Velocity, Rocks, Climatic factors, Mathematical models, Slope orientation.

35-2800
Vegetation organization and dynamics of lichen woodland communities in the Northwest Territories, Canada.
Johnson, E.A., *Ecology*, Feb. 1981, 62(1), p.200-215, Refs. p.213-215.
Mosses, Lichens, Vegetation, Distribution, Fires, Canada—Northwest Territories.

35-2801
Acoustic fluctuations due to the temperature fine structure of the ocean.
Unni, S., et al, *Acoustical Society of America. Journal*, Mar. 1981, 69(3), p.676-680, 12 refs.
Kaufman, C.
Sea water, Sound transmission, Underwater acoustics, Temperature effects.

35-2802
Building envelope performance testing.
Hartje, D.T., *ASHRAE journal*, Mar. 1981, 23(3), p.39-41, 16 refs.
Thermal insulation, Buildings, Infrared equipment, Heat loss, Air leakage, Houses.

35-2803
Fifth meeting of the editorial board of the World Atlas of Snow and Ice Resources. (Piatoe zasedanie redkollegii Atlasa snezhno-ledovykh resursov mira).
Dreier, N.N., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovaniĭ. Khronika obsuzhdeniia*, July 1980, Vol.39, p.5-6, In Russian.
Maps, Glaciers, Snow cover distribution, Spaceborne photography, Glaciology.

35-2804
Resolutions of the Editorial Board of the World Atlas of Snow and Ice Resources (The fifth meeting, 21 February, 1980). (Reshenie redaktsionnoĭ kollegii Atlasa snezhno-ledovykh resursov mira (Zasedanie No 5, 21 fevralia 1980 g.)), *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovaniĭ. Khronika obsuzhdeniia*, July 1980, Vol.39, p.7-8, In Russian.
Glaciers, Mapping, Snow cover distribution, Photointerpretation, Avalanches, Precipitation (meteorology), Glacial hydrology, Spaceborne photography, Land ice, Sea ice.

35-2805
Snow cover. (Razdel "snezhnyĭ pokrov").
Getker, M.I., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovaniĭ. Khronika obsuzhdeniia*, July 1980, Vol.39, p.8-20, In Russian. 11 refs.
Mapping, Land ice, Sea ice, Snow cover distribution, Glaciers, Glacial hydrology, Snow water equivalent, Snow depth, Snow density, Avalanches.

35-2806
Regime of glaciers. (Razdel "Rezhim lednikov").
Krenke, A.N., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovaniĭ. Khronika obsuzhdeniia*, July 1980, Vol.39, p.20-23, In Russian.
Glacier ice, Glacier ablation, Alimentation, Mapping, Snow line, Snow surveys.

35-2807
Atmospheric precipitation. (Razdel "Atmosfernye osadki").
Struzer, L.R., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovaniĭ. Khronika obsuzhdeniia*, July 1980, Vol.39, p.24-25, In Russian. 9 refs.
Bogdanova, E.G., Shver, Ts.A.
Mapping, Land ice, Sea ice, Snow cover, Precipitation (meteorology), Glacial hydrology 652
SSnow water equivalent.

35-2808
Snowmelt and glacial runoff. (Razdel "Talyĭ snegovoĭ i lednikovyĭ stok").
Dreier, N.N., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovaniĭ. Khronika obsuzhdeniia*, July 1980, Vol.39, p.25-26, In Russian.
Mapping, Glacier ablation, Snow melting, Runoff, Glacial hydrology, Land ice, Sea ice.

35-2809
Workshop session of the authors of avalanche maps, prepared for the World Atlas of Snow and Ice resources. (Rabochee soveshchanie avtorov lavinnykh kart Atlasa snezhno-ledovykh resursov mira).
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Miagkov, S.M.
Mapping, Avalanches, Snow depth, Snow density, Snow accumulation, Avalanche formation.

35-2810
Recommendations of the working session of the authors of avalanche maps. (Rekomendatsii rabochego soveshchaniia avtorov lavinnykh kart Atlasa snezhno-ledovykh resursov mira), *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovaniĭ. Khronika obsuzhdeniia*, July 1980, Vol.39, p.27-30, In Russian.
Maps, Avalanches, Snow accumulation, Avalanche forecasting, Snow depth, Avalanche formation, Snow density.

35-2811
Glaciological and geocryological field studies on King George Island during the 25th Soviet antarctic Expedition. (Polevye gliatsiologicheskie i geokriologicheskie issledovaniia na ostrove King-Dzhordzh v 25-oĭ Sovetskoĭ antarkticheskoĭ ekspeditsii).
Vtiurin, B.I., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovaniĭ. Khronika obsuzhdeniia*, July 1980, Vol 39, p 30, In Russian.
Ice sheets, Glacier ice, Snow surveys, Geocryology, Patterned ground, Permafrost distribution, Permafrost structure, Thermokarst, Expeditions, South Shetland Islands, Antarctica—Fildes Peninsula.
Two members of the Soviet Academy of Sciences Institute of Geography, Stationed on Bellingshausen Station, studied glacial and nival processes on King George Island, South Shetland Islands. Surveys were conducted on Fildes Peninsula, in Admiralty Bay. All-terrain vehicles were used on ice shield routes and a boat in crossing to the Nelson ice dome. The research lasted from Nov. 30, 1979 to Feb. 20, 1980 which included 2 1/2 months of snow surveying along 7 profiles. Temperature and structure of snow-firn-ice strata were studied in marginal parts of the ice shield, also the dynamics of an ice dome edge, old and recent moraines, ground ice and thaw depth of loose perennially frozen morainal deposits. Cryogenic relief was mapped on Fildes Peninsula. Results revealed glacier retreat on King George Island, continuous permafrost distribution and active layer thickness variation from 0.4 to 1.2 m, depending on seasonal snow cover regime. Frost weathering, nivation, frost sorting, solifluction and thermokarst were observed. Cryogenic rock structures are described and classified.

35-2812
Calculating glacial runoff in Caucasus by the air temperature field at the equilibrium line of glacier alimentation. (Raschet lednikovogo stoka na Kavkaze po poliu temperatury vozdukha na vysote granitsy pitaniia lednikov).
Krenke, A.N., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovaniĭ. Khronika obsuzhdeniia*, July 1980, Vol.39, p.31-37, 112-118, In Russian and English. 23 refs.
Tareeva, A.M.
Mountain glaciers, Glacier alimentation, Glacier ablation, Snow cover distribution, Glacial hydrology, Meteorological factors, USSR—Caucasus.

35-2813
Part of snowmelt in the discharge of Himalayan Rivers. (Dolia snegovogo pitaniia v stoke Gimalaiskikh rek).
Krishnamurthy, K., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, July 1980, Vol.39, p.37-39, 118-120. In Russian and English.
Snow cover distribution, Snowmelt, Snow water equivalent, Glacial hydrology, Glacial rivers, Alimentation, Himalaya Mountains.

35-2814
Using remote sensing in the evaluation of glacial runoff from the Himalayan basin of the Sutlej River. (Ispol'zovanie distantsionnogo zondirovaniia dlia otsenki lednikovogo stoka).
Ramamoorthi, A.S., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, July 1980, Vol.39, p.39-42, 120-124, In Russian and English.
Glacier ablation, Glacial hydrology, Snow cover distribution, Snow accumulation, Snow water equivalent, Snow surveys, Remote sensing, Spaceborne photography, Infrared mapping, Himalaya Mountains.

35-2815
Glacier alimentation and possibilities of long-range forecasting runoff of mountain rivers in catchment areas with widespread glaciation. (O lednikovom pitanii i vozmozhnostiakh dolgosrochnogo prognoza stoka gornykh rek s bol'shim oledeneniem vodosbora).
Abal'ian, T.S., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, July 1980, Vol.39, p.42-49, 124-129, In Russian and English. 13 refs.
Mukhin, V.M., Polunin, A.IA.
River basins, Mountain glaciers, Snow cover distribution, Glacier ablation, Snowmelt, Glacial rivers, Alimentation, Mathematical models.

35-2816
Modeling formation of runoff in a basin with widespread glaciation. (Model' formirovaniia stoka v basseine so znachitel'nym oledeneniem).
Borovikova, L.N., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, July 1980, Vol.39, p.49-55, 130-134, In Russian and English. 11 refs.
Konovalov, V.G.
River basins, Glaciation, Mountain glaciers, Glacier ablation, Snowmelt, Snow water equivalent, Glacial hydrology, Mathematical models.

35-2817
Streamflow formation in a glacierized watershed in the Rocky Mountains, Canada. (Formirovanie rechnogo stoka v lednikovom basseine v Skalistykh Gorakh Kanady).
Young, G.J., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, July 1980, Vol.39, p.55-62, 134-139, In Russian and English. 17 refs.
Glaciation, Snow accumulation, Glacial rivers, Alimentation, Runoff, Canada—Rocky Mountains.

35-2818
Contribution of glacier runoff to hydroelectric power generation on the Columbia River. (Dolia lednikovogo stoka v formirovanii gidroenergeticheskikh resursov reki Kolumbii).
Tangborn, W.V., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, July 1980, Vol.39, p.62-67, 140-143, In Russian and English. 7 refs.
Alimentation, Runoff, Glacier ablation, Electric power, United States—Columbia River.

35-2819
Evaluating the effect of natural and artificial dusting on ice and snow melting. (Otsenka vliianiia estestvennoi i iskusstvennoi zapylennosti na taianie l'da i snega).
Denisov, IU.M., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, July 1980, Vol.39, p.67-72, 143-147, In Russian and English. 3 refs.
Glacier ice, Glacier ablation, Snowmelt, Dusting.

35-2820
Methods of determining internal seepage alimentation of glaciers. (Metody opredelenia vnutrennego infil'tratsionnogo pitaniia lednikov).
Bazhev, A.B., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, July 1980, Vol.39, p.73-81, 147-154, In Russian and English. 4 refs.
Glacier alimentation, Meltwater, Seepage, Glacier ice, Porosity, Mass balance.

35-2821
Streamflow modelling for the Narssaq River Basin, Greenland. (Modelirovanie stoka basseina reki Narsak v Grenlandii).
Christensen, M., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, July 1980, Vol.39, p.81-86, 154-157, In Russian and English. 4 refs.
Hansen, E.
River basins, Glacial rivers, Alimentation, Glacial hydrology, Runoff, Electric power, Models, Greenland—Narssaq River.

35-2822
Studying natural isotope content and electrical conductivity of runoff waters from the Vernagtferner glacier (Oetztal Alps). (Kompleksnye issledovaniia prirodnogo soderzhaniia izotopov i elektroprovodnosti v vodakh potoka s lednika Fernagtferner (Etstal'skie Al'py).
Oerter, H., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, July 1980, Vol.39, p.86-92, 157-161, In Russian and English. 9 refs.
Glacier ice, Glacial rivers, Water chemistry, Isotope analysis, Hydrogen, Oxygen, Electrical properties.

35-2823
Dynamics of melt waters on the Abramov glacier. (Dinamika talykh vod na lednike Abramova).
Akbarov, A.A., et al, *Akademiia nauk SSSR Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, July 1980, Vol.39, p.92-96, 161-165, In Russian and English. 8 refs.
Mountain glaciers, Glacial hydrology, Glacier ablation, Meltwater.

35-2824
Periglacial lakes in Zailiyskiy Alatau. (Prilednikovye ozera v Zailiiskom Alatau).
Tokmagambetov, G.A., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, July 1980, Vol.39, p.97-101, 165-170, In Russian and English 4 refs.
Sudakov, P.A., Plekhanov, P.A.
Mountain glaciers, Moraines, Glacial lakes, Ice dams, USSR—Zailiyskiy Alatau.

35-2825
Impact of floods from glacier-dammed lakes, Yukon, Canada. (Pavodki na IUkone (Kanada), obuslovlennye proryvami lednikovo-podprudnykh ozer).
Young, G.J., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, July 1980, Vol.39, p.101-107, 170-175, In Russian and English. 8 refs.
Construction, Glacial lakes, Ice dams, Floods, Glacier ablation, Snowmelt, Moraines, Flood forecasting, Glacier oscillation, Roads, Canada—Yukon Territory.

35-2826
Mudflows in the Isfayramsay River Basin in 1977. (Seli v basseine r. Isfairamsai v 1977 g.).
Nikitin, A.M., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, July 1980, Vol.39, p.107-110, 175-178, In Russian and English. 2 refs.
Shchetinnikov, A.S.
Alpine landscapes, Glacial rivers, Glacial lakes, Moraines, Mudflows.

35-2827
Jökulhlaup (glacier bursts) and run-off series of Iceland rivers. (Lednikovye pavodki i riady stoka na rekakh Islandii).
Rist, S., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, July 1980, Vol.39, p.110-111, 178-179, In Russian and English.
Glacial rivers, Ice dams, Floods, Flood forecasting, Iceland.

35-2828
New data on the dynamics of ic[illegible]s in the Weddell Sea. (Novye dannye o dinamike shel'fovykh lednikov moria Ueddella).
Zakharov, V.G., et al, *Akademiia nauk SSSR Institut geografii Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, July 1980, Vol.39, p.181-185, In Russian with English summary 9 refs.
Kotliakov, V.M.
Ice shelves, Glacier ice, Flow rate, Calving, Icebergs, Antarctica—Weddell Sea.
Space photographs of the Weddell Sea coasts were obtained and compared to earlier maps for studying changes in fronts of the Larsen, Ronne and Filchner Ice Shelves during the last decade. Photointerpretation revealed continuous seaward progress of the fronts, reaching the maximum position in 1975-1976. Increased velocities and advance rates of ice edges were noticed after the calving of large icebergs. This was explained by changes in damming conditions of outlet glaciers and ice sheets. Giant icebergs break off periodically: every 20 years in the northwestern Ronne Ice Shelf, every 30 years in the central Larsen Shelf and every 15-17 years in the west Filchner Ice Shelf area.

35-2829
Studies of Spitsbergen snow cover in spring of 1979. (Issledovaniia snezhnogo pokrova Shpitsbergena vesnoi 1979 g.).
Troitskii, L.S., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, July 1980, Vol.39, p.185-192, In Russian with english summary 7 refs.
Gus'kov, A.S., Osokin, N.I., Khodakov, V.G.
Snow surveys, Snow cover distribution, Snow depth, Mapping, Snow accumulation, Snow density, Snow strength, Norway—Spitsbergen.

35-2830
Map of subglacial topography of the Vavilov Ice Dome (Severnaya Zemlya). (Karta rel'efa lozha lednikovogo kupola Vavilova na Severnoi Zemle).
Bogorodskii, V.V., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, July 1980, Vol 39, p.192-194, In Russian with English summary. 3 refs.
Glacier beds, Topography, Radar echoes, Ice cover thickness, USSR—Severnaya Zemlya.

35-2831
Observations in the mountain glacier basin of the Bol'shaya Khadata River, the Polar Urals, in the 1977-78 balance year. (Nabliudeniia v gorno-lednikovom basseine r. Bol'shaia Khadata na Poliarnom Urale v 1977-78 balansovom godu).
Gokhman, V.V., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, July 1980, Vol.39, p.194-200, In Russian with English summary. 9 refs.
River basins, Mountain glaciers, Snow cover distribution, Snow surveys, Snow depth, Meteorological charts, Meteorological data, USSR—Ural Mountains.

35-2832
Plotting precipitation fields of the Surkhob, Obikhingou and Vanch river basins in the Pamirs from data on accumulation at the equilibrium line of glacier alimentation. (Postroenie polia osadkov v basseinakh rek Surkhob, Obikhingou i Vanch na Pamire po dannym ob akkumuliatsii na vysote granitsy pitaniia lednikov).
Tarasova, L.N., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii Khronika obsuzhdeniia*, July 1980, Vol.39, p.200-203, In Russian with English summary. 8 refs.
Glacier ice, Snow accumulation, Snowstorms, Avalanches, Ablation, USSR—Pamirs.

35-2833
Tests of the stream-melting theory on the Adishi and Khalde glaciers of the Caucasus. (Proverka teorii ruchelkovogo taianiia na lednikakh Adishi i Khalde (Kavkaz).
Kazanskii, A.B., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia*, July 1980, Vol.39, p.203-206, In Russian with English summary 2 refs.
Lukin, V.M.
Mountain glaciers, Glacier ablation, Meltwater, Heat transfer, Air temperature, Analysis (mathematics), USSR—Caucasus.

35-2834
Fluctuations of the Bol'shoy Azau Glacier tongue on the Elbrus Mountain. (Kolebaniia iazyka ledника Bol'shoĭ Azau na El'brusc).
Martyshev, A.P., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia.* July 1980, Vol.39, p.207-209. In Russian with English summary.
Mountain glaciers, Glacier tongues, Glacier oscillation, USSR—El'brus Mountain.

35-2835
Flank and frontal moraines of surging glaciers. (Beregovye i konechnye moreny pul'siruiushchikh ledникov).
Repin, A.G., *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia.* July 1980, Vol.39, p.209-212. In Russian with English summary. 8 refs
Mountain glaciers, Glacier surges, Moraines, Glacier surveys, Spaceborne photography, Pamirs.

35-2836
Optimal evaluation of glacier characteristics. (Ob optimal'noĭ otsenke kharakteristik ledникov).
Grakovich, V.F., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia.* July 1980, Vol.39, p.213-215. In Russian with English summary 4 refs.
Ryzhova, V.E.
Glaciers, Mapping, Glacier surveys, Remote sensing, Analysis (Mathematics), Physical properties, Geomorphology.

35-2837
Annotated list of Soviet literature on glaciology for 1978. (Annotirovannyĭ spisok sovetskoĭ literatury po gliatsiologii za 1978 g.).
Kotliakov, V.M., et al, *Akademiia nauk SSSR. Institut geografii. Materialy gliatsiologicheskikh issledovanii. Khronika obsuzhdeniia.* July 1980, Vol.39, p.216-283. In Russian. 631 refs.
Chernova, L.P.
Bibliographies, Glaciology, Meetings, Research projects, Ice composition, Ice physics, Sea ice, River ice, Lake ice, Ground ice, Naleds, Avalanches, Snow cover, Icing.
The list contains citations of Soviet publications on glaciology, published in Russian (or having summaries in Russian) in periodicals, proceedings and transactions of conferences for 1978. It is a continuation of similar bibliographies for 1956-1977. The annotated citations are presented in the following sections. Organization of studies, scientific meetings, conferences (1-24). Methods of studies (25-50). General problems of glaciology (51-119). Physics and chemistry of ice (120-133). Sea ice (134-228). River and lake ice (229-254). Underground ice and aufeis (255-293). Paleoglaciology (294-337). The Antarctic and the Arctic (338-376). The Caucasus (377-387). Central Asia and Kazakhstan (388-410). Siberia and Soviet Far East (411-446). Snow Avalanches and glacial mudflows (447-489). Snow cover, hail, hoarfrost and glaze (490-591). Seasonal snow cover outside the areas of present-day glaciers (592-631) and Name index. (Auth.)

35-2838
On the role of giant aerosol particles and ice-forming nuclei in the formation of hailstone nuclei.
Khorguani, V.G., *Akademiia nauk SSSR. Izvestiya. Atmospheric and oceanic physics.* 1979 (Publ. Apr. 80), 15(9), p.638-643, 10 refs., Translated from Fizika atmosfery i okeana.
Hail clouds, Aerosols, Ice nuclei, Hailstone growth.

35-2839
Fabrics makes foundation garment. *Alaska industry,* Jan. 1981, 14(1), p.14.
Foundations, Cold weather construction, Polymers, Soil Stabilization, Permafrost beneath structures, Materials, Petroleum products.

35-2840
Experience with the construction and performance of pile foundations under oil-pumping units.
Chizhevskiĭ, M.V., *Soil mechanics and foundation engineering.* July-Aug. 1980 (Publ. Jan.81), 17(4), p.125-127. Translated from Osnovaniia, fundamenty i mekhanika gruntov. 3 refs.
Petroleum industry, Pipelines, Buildings, Piles, Foundations, Frozen ground.

35-2841
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Novikov, F.IA., *Soil mechanics and foundation engineering.* July-Aug. 1980 (Publ. Jan. 81), 17(4), p.146-152. Translated from Osnovaniia, fundamenty i mekhanika gruntov. 6 refs.
Earth fills, Slope stability, Walls, Permafrost beneath structures.

35-2842
Quick method of roadbed construction on narrow steep-sloping sections of the Baykal Amur railroad. (Skorostnoĭ metod sooruzheniia zemlianogo polotna na prizhimnykh uchastkakh trassy BAMa).
Podkaliuk, V.P., et al, *Transportnoe stroitel'stvo,* Mar. 1981, No.3, p.3-4, In Russian.
Shitikov, M.A., Kolesnikov, N.S.
Roadbeds, Embankments, Permafrost beneath structures, Earthwork, Blasting, Baykal Amur railroad.

35-2843
Bridge construction on temporary access roads. (Stroitel'stvo mostov na vremennykh pritrassovykh avtodorogakh).
Rasskazov, I.D., et al, *Transportnoe stroitel'stvo,* Mar 1981, No.3, p.6-8, In Russian.
Ronin, B.G., Pyshko, L.V.
River crossings, Roads, Bridges, Ice jams, Icebound rivers, Ice loads, Mudflows, Floods, Baykal Amur railroad, Construction materials.

35-2844
Modernizing prefabricated buildings for repair shops and preventive maintenance equipment at the Baykal Amur railroad. (Modernizatsiia inventarnykh zdaniĭ masterskikh i profilaktoriev na BAMe).
Bardyshev, O.A., et al, *Transportnoe stroitel'stvo,* Mar. 1981, No.3, p.17-19, In Russian.
Cherevko, V.I.
Buildings, Prefabrication, Modular construction, Permafrost beneath structures, Thermal insulation, Baykal Amur railroad, Construction materials.

35-2845
Quick method of checking the pollution of construction materials used in Angarstroi. (Ekspress-kontrol' zagriaznennosti stroitel'nykh materialov v Angarstroe).
Tantsman, M.A., et al, *Transportnoe stroitel'stvo,* Mar. 1981, No.3, p.22-23, In Russian.
IAkovlev, V.A.
Cold weather construction, Construction materials, Pollution, Mud, Water supply, USSR.

35-2846
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Solomonov, S.A., *Transportnoe stroitel'stvo,* Mar. 1981, No.3, p.24-26, In Russian. 6 refs.
Earthwork, Excavation, Frozen ground.

35-2847
Durability of polymer concretes. (O stoĭkosti betonopolimera).
Granovskaia, I.V., et al, *Transportnoe stroitel'stvo,* Mar. 1981, No.3, p.51, In Russian.
Roiak, G.S.
Concretes, Polymers, Cements, Concrete strength, Frost resistance, Freeze thaw cycles.

35-2848
Ust'-Ilim Lumber Industry Complex. (Ust'-Ilimskogo lesopromyshlennogo kompleksa). *Mekhanizatsiia stroitel'stva,* Apr. 1981, No.4, p.12-14, In Russian.
Large panel buildings, Construction equipment, Cranes (hoists), Earthwork, Excavation.

35-2849
Snowplows DE-223 and DE-225. (Snegoochistiteli DE-223 i DE-225), *Mekhanizatsiia stroitel'stva,* Apr. 1981, No.4, p.25, In Russian.
Road maintenance, Winter maintenance, Snow removal.

35-2850
New excavation machines and equipment. (Novye zemleroĭnye mashiny i oborudovanie), *Mekhanizatsiia stroitel'stva,* Apr. 1981, No.4, p.26-27, In Russian.
Excavation, Frozen ground.

35-2851
Selecting pile-driving equipment and forecasting the process of pile sinking into plastic perennially frozen ground. (Vybor ratsional'nogo svaeboĭnogo oborudovaniia i prognozirovanie protsessa bezdefektnogo pogruzheniia svai v plastichnomerzlye grunty), Novozhilov, G.F., *Mekhanizatsiia stroitel'stva,* Mar. 1981, No.3, p.16-18, In Russian. 7 refs.
Foundations, Piles, Pile driving, Permafrost.

35-2852
Problems of mechanizing the laying of underground cables. (Zadachi mekhanizatsii prokladki kabelei).
Medorezov, I.A., et al, *Mekhanizatsiia stroitel'stva,* Feb. 1981, No.2, p.17-18, In Russian. 3 refs
Kuz'menko, V.V.
Equipment, Underground cables, Earthwork, Excavation, Permafrost, Cables (ropes).

35-2853
Gantry crane for repairing construction equipment at the Baykal Amur railroad. (Kozlovoĭ kran dlia remonta stroitel'noĭ tekhniki na BAMe).
Talts, V.G., et al, *Mekhanizatsiia stroitel'stva,* Feb 1981, No.2, p.21-22, In Russian.
Vil'ner, A.D.
Construction equipment, Winter maintenance, Baykal Amur railroad.

35-2854
To the Pole of Inaccessibility. (K poliusu nedostupnosti).
Pikul', V., *Izobretatel' i ratsionalizator,* 1981, No.2, p.24-26, In Russian.
Ice navigation, Icebreakers, Subglacial navigation, Submarines, Arctic Ocean.

35-2855
Shapes of snow and ice.
Takahashi, K., Tokyo, Asahi Newspaper Co., 1980, 119p., In Japanese.
Snow cover, Ice cover, Surface structure, Snow melting, Ice melting.

35-2856
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Bumpass, D., *Illinois Institute of Natural Resources Environmental Management Division. Document,* May, 1980, No.80/80, 11p. + appends., 11 refs.
Snow vehicles, Noise (sound), Countermeasures, Pollution, Legislation, Cost analysis.

35-2857
Rapid ice building examined in Alaska. *Illinois Institute of Natural Resources. Environmental Management Division. Document,* May, 1980, No.80/80, p.10.
Artificial ice, Ice crystal nuclei, Drops (liquids), Freezing, Ice growth, Heat transfer, Mass transfer.

35-2858
Ice and steep slopes present design challenges for arctic production islands. *Illinois Institute of Natural Resources. Environmental Management Division. Document,* May, 1980, No.80/80, p.24-28.
Artificial islands, Ice pressure, Ice loads, Slopes, Water waves, Maintenance, Design, Offshore structures.

35-2859
Aquaculture systems for wastewater treatment: an engineering assessment.
Reed, S.C., et al, *U.S. Environmental Protection Agency. Office of Water Program Operations. Technical bulletin,* June 1980, 430/9-80-007, MP 1422, 127p., Refs. passim. For selected papers see 35-2860 and 35-2861.
Bastian, R.K.
Waste treatment, Water treatment, Sanitary engineering, Ponds, Cold weather performance, Aquaculture.

35-2860
Engineering assessment of aquaculture systems for wastewater treatment: an overview.
Reed, S.C., et al, *U.S. Environmental Protection Agency. Office of Water Program Operations. Technical bulletin,* June 1980, 430/9-80-007, MP 1423, p.1-12.
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Waste treatment, Water treatment, Sanitary engineering, Ponds, Aquaculture.

35-2861
Combined aquaculture systems for wastewater treatment in cold climates: an engineering assessment.
Pershe, E.R., *U.S. Environmental Protection Agency. Office of Water Program Operations. Technical bulletin,* June 1980, 430/9-80-007, p.105-127, 6 refs.
Waste treatment, Water treatment, Sanitary engineering, Cold weather performance, Ponds, Aquaculture.

35-2862
Wastewater treatment ponds. *U.S. Environmental Protection Agency Office of Water Program Operations. Technical bulletin,* Mar. 1975, 430/9-74-001, 21p. + appends., 42 refs.
Waste treatment, Water treatment, Ponds, Environmental protection, Legislation.

35-2863
Little America: town at the end of the world.
Carter, P.A., New York, Columbia University Press, 1979, 301p., Numerous refs.
DLC G860.C324
Expeditions, Exploration, Stations, History, Antarctica—Little America.
The book is essentially the story of the last American frontier town, and of rapidly changing exploration technology which evolved from the windjammer and the coal-burning ship of Byrd's first expedition in 1929 to diesel powered ships and long

range aircraft of the 1950's and the nuclear powered station of the 1960's. But above all it is the story of the people involved either directly as participants in the expeditions, as sponsors, or as contributors of funds Even a partial listing of those who pass through these pages is revealing Byrd, Ellsworth, Gould, Siple, Mawson, Goodale, Ronne, Hillary, Fuchs, Balchen, FDR John D Rockefeller, Edsel Ford, Jacob Ruppert, Dana Conan, Lindbergh, Gene Tunney

35-2864
From nomadic to mobile architecture. {Ot kochevoĭ do mobil'noĭ arkhitektury}.
Maldar, D., et al, Moscow, Strolizdat, 1980, 215p. (Pertinent p.174-213), In Russian with abridged English table of contents enclosed. 215 refs.
Piurveev, D.
Urban planning, Inflatable structures, Buildings, Thermal insulation, Modular construction, Trailers, Construction materials.

35-2865
Measuring the size of artificial ice-forming nuclei with diffusion batteries. {Izmerenie razmera iskusstvennykh l'doobrazuiushchikh iader diffuzionnymi batareiami}.
Beliaev, S.P., et al, *Moscow. Institut eksperimental'noĭ meteorologii. Trudy*, 1980, 25(93), p.57-63, In Russian. 11 refs.
Kim, N.S.
Aerosols, Smoke generators, Nucleating agents, Wind tunnels, Ice crystal nuclei, Measuring instruments, Laboratory techniques.

35-2866
Biocenotic role of animals in the Yamal forest tundra. {Biotsenoticheskaia rol' zhivotnykh v lesotundre IAmala}.
Danilov, N.N., ed, *Akademiia nauk SSSR. Ural'skiĭ nauchnyĭ tsentr. Institut ekologii rastenii i zhivotnykh. Trudy*, 1977, Vol.106, 146p., In Russian. For selected papers see 35-2867 and 35-2868. Refs. passim.
Subarctic landscapes, Tundra, Forest tundra, Cryogenic soils, Soil microbiology, Meadows, Swamps, Plant ecology, Biomass, Animals, USSR—Yamal Peninsula.

35-2867
Role of animals in Subarctic biogeocenoses. {Rol' zhivotnykh v biogeotsenozakh subarktiki}.
Danilov, N.N., *Akademiia nauk SSSR. Ural'skiĭ nauchnyĭ tsentr. Institut ekologii rastenii i zhivotnykh. Trudy*, 1977, Vol 106, p.3-30, In Russian. 60 refs.
Subarctic landscapes, Cryogenic soils, Soil microbiology, Plant ecology, Biomass, Animals.

35-2868
Productivity of plant communities of the "Khadyta" research station and the effect of rodents on grass cover in the study areas. {Produktivnost' rastitel'nykh soobshchestv statsionara "Khadyta" i vliianie gryzunov na travianoĭ pokrov poligonov}.
Peshkova, N.V., *Akademiia nauk SSSR. Ural'skiĭ nauchnyĭ tsentr. Institut ekologii rastenii i zhivotnykh. Trudy*, 1977, Vol 106, p.134-145, In Russian. 11 refs.
Subarctic landscapes, Forest tundra, Taiga, Cryogenic soils, Grasses, Meadows, Swamps, Biomass, Plant ecology.

35-2869
Effect of hail nuclei concentration on their coagulation growth. {O vliianii kontsentratsii zarodyshei gradin na protsess ikh koaguliatsionnogo rosta}.
Kartsivadze, A.I., et al, *Akademiia nauk Gruzinskoĭ SSR. Institut geofiziki. Trudy*, 1980, Vol.47, p.5-17, In Russian with English and Georgian summaries. 7 refs.
Kiriia, D.K., Osidze, I.G.
Hail clouds, Ice nuclei, Hailstone growth, Coagulation.

35-2870
Influence of vapor supersaturation on the process of heterogeneous nucleation. {Vliianie peresyshcheniia para na protsess geterogennoĭ nukleatsii}.
Kartsivadze, A.I., et al, *Akademiia nauk Gruzinskoĭ SSR. Institut geofiziki. Trudy*, 1980, Vol.47, p.18-30, In Russian with English and Georgian summaries. 19 refs.
Kokrashvili, G.Z.
Cloud seeding, Heterogeneous nucleation, Ice nuclei, Ice crystal structure, Nucleating agents, Water vapor, Supersaturation, Test equipment, Laboratory techniques.

35-2871
Effect of water vapor supersaturation on ice-forming properties of copper acetylacetonate. {O vliianii peresyshcheniia vodianogo para na l'doobrazuiushchuiu aktivnost' atsetilatsetonata medi}.
Chochishvili, K.M., et al, *Akademiia nauk Gruzinskoĭ SSR. Institut geofiziki. Trudy*, 1980, Vol.47, p.31-36, In Russian with English and Georgian summaries. 4 refs.
Bibiluri, L.Sh.
Cloud seeding, Nucleating agents, Ice crystal nuclei, Cloud chambers, Water vapor, Supersaturation.

35-2872
Construction of seismically stable structures on permafrost. {Seismostoikoe stroitel'stvo na vechnomerzlykh gruntakh}.
Kharitonov, V.A., Leningrad, Strolizdat, 1980, 79p., In Russian with English table of contents enclosed. 165 refs.
Buildings, Foundations, Permafrost beneath structures, Earthquakes, Wave propagation, Seismic velocity, Ground thawing, Frozen rocks.

35-2873
Construction of bulk plants and gasoline stations. {Stroitel'stvo neftebaz i avtozapravochnykh stantsiĭ}.
Groznov, G.A., et al, Moscow, Nedra, 1980, 332p. (Pertinent p.56-147), In Russian with abridged English table of contents enclosed. 43 refs.
Vashurkin, IU.B.
Petroleum industry, Storage tanks, Logistics, Concrete structures, Reinforced concretes, Foundations, Earthwork, Cold weather construction, Permafrost beneath structures.

35-2874
Heat and mass transfer in massive rocks and in underground structures. {Teplo- i massoobmen v gornom massive i podzemnykh sooruzheniiakh}.
Kremnev, O.A., et al, Kiev, Naukova dumka, 1980, 383p., In Russian with English table of contents enclosed. 67 refs.
Zhuravlenko, V.IA.
Mining, Rock excavation, Shafts (excavations), Underground storage, Underground facilities, Tunnels, Ventilation, Heat transfer, Mass transfer.

35-2875
Simplified genetic formula for calculating maximum spring flood runoff in the Upper Kolyma River basin. {Uproshchennaia geneticheskaia formula stoka dlia rascheta maksimal'nykh raskhodov vesennego polovod'ia v basseĭne Verkhnei Kolymy}.
Boiarintsev, E.L., et al, *Vladivostok. Dal'nevostochnyĭ nauchno-issledovatel'skiĭ gidrometeorologicheskiĭ institut Trudy*, 1980, Vol.84, p.3-11, In Russian. 7 refs.
Gopchenko, E.D.
River basins, Snow cover distribution, Snowmelt, Snow water equivalent, USSR—Kolyma River.

35-2876
Characteristics of the regime and methods of long range forecasting of dates of ice breakup on rivers crossed by the Baykal Amur railroad. {Kharakteristika rezhima i metodika dolgosrochnogo prognoza sroka vskrytiia rek peresekaemykh trassoĭ BAM}.
Lobovikova, Z.P., *Vladivostok. Dal'nevostochnyĭ nauchno-issledovatel'skiĭ gidrometeorologicheskiĭ institut. Trudy*, 1980, Vol.84, p.29-34, In Russian. 4 refs.
River crossings, Icebound rivers, Ice forecasting, Baykal Amur railroad, Long range forecasting.

35-2877
Peculiarities of ice breakup on Far East rivers and its short range forecasting. {Osobennosti vskrytiia rek iuga Dal'nego Vostoka i vozmozhnost' ego kratkosrochnogo prognoza}.
Shilina, L.I., *Vladivostok. Dal'nevostochnyĭ nauchno-issledovatel'skiĭ gidrometeorologicheskiĭ institut. Trudy*, 1980, Vol.84, p.63-68, In Russian. 3 refs.
Icebound rivers, Ice breakup, Ice forecasting.

35-2878
Calculating minimum winter runoff in the eastern Baykal Amur railroad area. {Raschet minimal'nogo zimnego stoka zony vostochnogo uchastka trassy BAM}.
Riabova, L.I., *Vladivostok. Dal'nevostochnyĭ nauchno-issledovatel'skiĭ gidrometeorologicheskiĭ institut. Trudy*, 1980, Vol.84, p.77-85, In Russian. 4 refs.
Water supply, Icebound rivers, Runoff, Permafrost beneath rivers, Baykal Amur railroad.

35-2879
Anmangynda River naled, its regime and role in the water balance of the river basin. {Anmangyndinskaia naled', ee rezhim i rol' v vodnom balanse rechnogo basseĭna}.
Lebedev, V.M., et al, *Vladivostok. Dal'nevostochnyĭ nauchno-issledovatel'skiĭ gidrometeorologicheskiĭ institut. Trudy*, 1980, Vol.84, p.86-93, In Russian. 5 refs.
Ipat'eva, A.I.
River basins, Water balance, Naleds, Ice growth, Ice volume, Ice (water storage), Soil freezing, Frost penetration.

35-2880
Concrete and reinforced concrete work. Construction manual. {Betonnye i zhelezobetonnye raboty. Spravochnik stroiteliia}.
Topchiĭ, V.D., ed, Moscow, Strolizdat, 1980, 201p., In Russian with abridged English table of contents enclosed.
Concretes, Reinforced concretes, Cellular concretes, Lightweight concretes, Concrete aggregates, Cements, Formwork (construction), Winter concreting, Concrete admixtures.

35-2881
Modern methods of hard ground excavation. {Sovremennye metody razrabotki prochnykh gruntov}.
Chechenko, M.S., Lemingrad, Strolizdat, 1980, 127p., In Russian with English table of contents enclosed. 56 refs.
Blasting, Excavation, Hydraulic jets, Artificial melting, Frost protection, Earthwork, Frozen ground.

35-2882
Multi-story stone buildings in the North. {Kamennye zdaniia povyshennoĭ etazhnosti na Severe}.
Kalin, M.S., et al, Leningrad, Strolizdat, 1980, 153p., In Russian with English table of contents enclosed. 22 refs.
Pikhovkin, V.A., Shkliarov, N.D.
Buildings, Masonry, Cold weather construction, Thermal insulation, Walls, Prefabrication, Permafrost beneath structures, Mortars, Cement admixtures, Large panel buildings.

35-2883
Polarization of radio waves in ice sheets.
Doake, C.S.M., *Geophysical journal*, Feb. 1981, 64(2), p.539-558, 20 refs.
Ice sheets, Radio waves, Radio echo soundings, Polarization (waves), Analysis (Mathematics).
The polarization behavior of radio waves which have been transmitted and reflected at or near normal incidence in an ice sheet can be explained if the ice is assumed to be a uniaxial birefringent material Equations are derived for describing the change in polarization for the experimental conditions usually encountered when sounding ice sheets The operation of several different types of polarimeter is discussed in order to compare the amount and the quality of information which can be obtained for various degrees of complexity in equipment and technique Data obtained from sounding the antarctic ice sheet was used to develop the equations (Auth mod)

35-2884
International ice patrol. *Marine observer*, Jan. 1981, 51(271), p.20-31.
Sea ice, Ice conditions, Ice reporting, Icebergs, Aerial surveys, History.

35-2885
Sodium, magnesium, potassium and calcium concentrations in ice cores from the Law Dome, Antarctica.
Johnson, B.B., et al, *Geochimica et cosmochimica acta*, May 1981, 45(5), p.771-776, 19 refs.
Chamberlain, J.M.
Ice cores, Ice composition, Antarctica—Law Dome.
The concentrations of Na, Mg, K and Ca have been determined in three ice cores drilled along a flow line of the Law Dome, Antarctica. Average cationic concentrations in the upper sections of the cores show a marked decrease in concentration with increasing distance from the coast. A depth profile of the core drilled 5 km from the coast near Cape Folger indicates that the ice below 260 m was precipitated in a colder climate regime, probably towards the end of the Wisconsin stage. The depth profile of the core located at the summit of the dome, 110 km from the coast, shows an unexpected steady increase in the concentration of cations with depth. This may indicate an increase in precipitation, or a gradual change in wind patterns on the dome over recent centuries (Auth.)

35-2886
Use of radio-echo measurements in determining the thickness and velocity of an antarctic ice sheet.
Bogorodskiĭ, V.V., et al, *Akademia nauk SSSR. Izvestiya. Physics of the solid earth*, Aug. 1979, 15(1), p.60-74, 7 refs. Translated from its Izvestiia. Fizika zemli.
Trepov, G.V., Sheremet'ev, A.N.
Ice sheets, Ice cover thickness, Glacier flow, Radio echo soundings.

The authors developed and used in the Soviet Antarctic Expedition a technique of radio-echo measurements of the velocity under field conditions which allows determination of velocity of glacier movement with a relative error of 10% from two measurements 2 to 20 days apart. A combination of radio-echo measurements of the velocity and the thickness of an ice form permits the solution of a number of problems in ice sheet dynamics. This paper presents the results of the determination of the solid flow of ice across a latitudinal section and the mass balance of the ice sheet south of Molodezhnaya from radio-echo measurement data on the thickness and velocity of the ice form and front snow-metering observations in this area. (Auth.)

35-2887

Anomalous behaviour of Dome C ice core (East Antarctica) studied by mechanical damping measurements.

Vassoille, R., et al, *Annales de géophysique*, Oct.-Dec. 1980, 36(4), p.491-498, 28 refs.

Ice cores, Ice electrical properties, Antarctica—Dome C.

In order to investigate anomalous properties of Antarctic ice previously observed through electrical measurements, the authors studied specimens from the Dome C ice core by means of mechanical damping in the low frequency range (1 Hz). The temperature of the relaxation peak is lower than in the case of pure ice. Two possible explanations of the anomalous properties of polar ice are discussed, namely the role of impurities, or aging effect and conditions of crystal growth. It seems improbable that impurities are responsible for such properties due to their low concentration. But some experiments explain the behaviour of polar ice in terms of modifications with time of the concentration and distribution of intrinsic point defects present at the beginning of existence of the ice microcrystals; the conditions of formation of these crystals from snow are also discussed. (Auth.)

35-2888

Oceanographic investigations in polar regions of the World Ocean. [Okeanograficheskie raboty v poliarnykh rafonakh Mirovogo okeana],

Blinov, N.I., et al, Leningrad, Gidrometeoizdat, 1980. 239p., In Russian with English table of contents enclosed. 132 refs.

Dremliug, V.V., Romantsov, V.A.

Ice conditions, Meteorology, Drift stations, Subglacial observations, Oceanography, Research projects, Computer applications, Arctic Ocean.

Methods of oceanographic research in the polar regions are reviewed and alternatives of their development and improvement are considered. The book contains information on experiments from drifting ice in the arctic, shipboard instrumentation of Soviet vessels in the Arctic and Antarctic, specifications of technical aids, and detailed considerations of the measurement of various oceanographic elements and computer processing of the data. Theory and techniques of planning oceanographic research are discussed.

35-2889

Effect of latent heat on frost penetration in moist soil.

Hooper, F.C., et al, Canadian Congress of Applied Mechanics, 7th, Sherbrooke, Quebec, Canada, May 21-June 1, 1979. Proceedings, Toronto, University, Dept. of Mechanical Engineering, May 1979, p.789-790, 3 refs.

McClenahan, J.D.

Soil water, Frost penetration, Latent heat, Ground thawing, Soil freezing, Moisture, Freeze thaw tests, Heat loss, Models.

35-2890

Ecosystem models vs biological reality: experiences in the systems analysis of an arctic pond.

Hobbie, J.E., et al, *Internationale Vereinigung für Limnologie. Verhandlungen*, Sep. 1978, Vol.20, p.105-109, 12 refs.

Tiwari, J.L.

Ponds, Limnology, Ecosystems, Models, Primary productivity, United States—Alaska—Barrow.

35-2891

On measurements of solar radiation, collection of the solar energy and feasibility for the snow melting by the energy in winter of Shinjo area.

Abe, O., et al, *Japan. National Research Center for Disaster Prevention. Report*, Mar. 1980, No.23, p.245-270, In Japanese with English summary. 8 refs.

Nakamura, T., Nakamura, H.

Snow melting, Solar radiation, Thermal effects, Temperature measurement, Winter.

35-2892

Optical, chemical and physical properties of aerosols over the antarctic ice sheet.

Shaw, G.E., *Atmospheric environment*, 1980, 14(8), p.911-921, 35 refs.

Aerosols, Atmospheric composition, Atmospheric attenuation, Particle size distribution, Ice sheets, Antarctica—Amundsen-Scott Station, Antarctica—Ross Island.

Multiwavelength optical measurements of atmospheric extinction and sky brightness in the solar aureole were made at Ross Island and at South Pole Station, to derive the column-integrated size distribution and mass loading of suspended aerosol. In addition, the composition and particle size distribution near the surface at South Pole, the Ross Ice Shelf and from the summit of Mt Erebus volcano were derived by electron microscopic analysis and X-ray spectrometry. (Auth. mod.)

35-2893

Ice core studies: dating the past to find the future.

Dansgaard, W., *Nature*, Apr. 2, 1981, 290(5805), p.360-361, 24 refs.

Ice cores, Ice dating, Climatic changes.

Reasons for studying ice cores are explained, some of the methods and materials needed for dating ice cores are identified. Significant discoveries made from ice core dating and how these are useful in estimating future climatic changes are pointed out. Brief comparisons between Greenland and antarctic ice cores are made.

35-2894

Toxic volatile organics removal by overland flow land treatment.

Jenkins, T.F., et al, MP 1421, Water Pollution Control Federation Annual Conference, 53rd, Las Vegas, Nev., Sep 28-Oct. 3, 1980. Proceedings of the research symposia (Preprints), Washington, D.C., Water Pollution Control Federation, (1981), 14p., 27 refs.

Leggett, D.C., Martel, C.J., Peters, R.E., Lee, C.R.

Waste treatment, Water treatment, Surface waters, Flooding, Organic wastes, Purification.

35-2895

Progress of Chinese research work on glaciers and frozen ground in the last 30 years.

Shih, Y., et al, *Glaciology and cryopedology*, 1979, No.2, p.1-6, 10 refs., In Chinese.

Jen, P., Hsieh, T.

Glaciers, Permafrost, Geocryology, Research projects, China.

35-2896

Chinese research work on frozen ground and engineering work in the last 30 years.

Chen, S., et al, *Glaciology and cryopedology*, 1979, No.2, p.7-12, 19 refs., In Chinese.

Chung, P., Ting, C., Chan, C.

Permafrost, Engineering geology, Research projects, Frozen ground, Earthwork, China.

35-2897

Basis and division of the ice period in western China.

Tsui, T., *Glaciology and cryopedology*, 1979, No.2, p.13-21, 3 refs., In Chinese.

Glaciology, Geomorphology, Ice age theory, China.

35-2898

Historical Mu-chia-erh-te Glacier valley and east-west communication.

Shih, Y., et al, *Glaciology and cryopedology*, 1979, No.2, p.22-26, In Chinese.

Wang, T.

Mountain glaciers, Roads, Transportation.

35-2899

Function and characteristics of glaciers and utilization of water resources in the Ha-la-hu Lake area.

Wu, K., et al, *Glaciology and cryopedology*, 1979, No.2, p.27-32, 10 refs., In Chinese.

Liu, C.

Glacial lakes, Water reserves, Geomorphology, Glaciers.

35-2900

Survey of speed of movement of the glacier in the K'o-la-kun-lun Mountain region.

Sun, T., *Glaciology and cryopedology*, 1979, No.2, p.33-38, In Chinese.

Glacier flow, Glacier oscillation, Velocity, Mountain glaciers.

35-2901

Some differences between the Chinese Ching-hai/Tibet Plateau aged frozen ground and the old frozen ground in northern Canada.

Cheng, K., *Glaciology and cryopedology*, 1979, No.2, p.39-42, In Chinese.

Differences between permafrost in China and Canada

Permafrost, China, Canada.

35-2902

Problem of stability of the foundation in building the Ching-hai/Tibet highway.

China. Ministry of Communications. Scientific Research Unit for the Ching-hai/Tibet Highway, *Glaciology and cryopedology*, 1979, No.2, p.43-51, In Chinese.

Roadbeds, Construction, Soil stabilization, Frost action, Stability, Mountains.

35-2903

Engineering classification of aged frozen ground.

Wu, T., *Glaciology and cryopedology*, 1979 No.2, p.52-60, In Chinese.

Frozen ground strength, Permafrost, Engineering, Earthwork.

35-2904

Structure and changing shape, due to ice melting, of the Quaternary stratum of the middle reaches of Heilung-chiang River.

Chiao, K., et al, *Glaciology and cryopedology*, 1979, No.2, p.61-66, 4 refs., In Chinese.

Liao, C.

Ice melting, Periodic variations, Permafrost, Paleoclimatology, Pleistocene.

35-2905

Research on a model of thermal treatment of frozen ground.

Chu, L., *Glaciology and cryopedology*, 1979, No.2, p.67-71, 2 refs., In Chinese.

Frozen ground strength, Thermal effects, Engineering, Earthwork, Models.

35-2906

Chiao-li-feng Peak and its glacier.

Wang, H., *Glaciology and cryopedology*, 1979, No.2, p.72-76, In Chinese.

Mountain glaciers, Geomorphology.

35-2907

Data on the glacier of Chi-lien-shan Mountain.

Fei, C., *Glaciology and cryopedology*, 1979, No.2, p.77-80, In Chinese.

Mountain glaciers, Geomorphology, Statistical analysis.

35-2908

Why does the road turn to melting.

Wang, C., *Glaciology and cryopedology*, 1979, No.2, p.81, In Chinese.

Roads, Ice melting, Snow melting, Temperature effects.

35-2909

Icebergs.

Wang, C., *Glaciology and cryopedology*, 1979, No.2, p.82-83, In Chinese.

Icebergs, Sea ice distribution, Ice conditions.

35-2910

Mass balance and its relationship with characteristics of glaciers.

Xie, Z., *Journal of glaciology and cryopedology*, Oct. 1980, 2(4), p.1-10, 32 refs., In Chinese with English summary.

Glacier mass balance, Glacier surveys, Ice formation, Ice temperature, Glacier flow.

35-2911

Glacial meteorology of Mt. Tuomuer.

Kou, Y., et al, *Journal of glaciology and cryopedology*, Oct. 1980, 2(4), p.11-14, In Chinese with English summary.

Glacial meteorology, Glacier surfaces, Precipitation (meteorology), Radiation balance, Heat transfer.

35-2912

Primary results of the study on modern glaciers in the region of Mt. Tuomuer.

Wang, L., et al, *Journal of glaciology and cryopedology*, Oct. 1980, 2(4), p.15-18, In Chinese with English summary.

Mountain glaciers, Glacier alimentation, Precipitation (meteorology), Ice formation, Glacier ablation, Glacier flow, Ice composition, Glacier mass balance.

35-2913

Some results of the research on glacial hydrology in the region of Mt. Tuomuer.

Kang, E., et al, *Journal of glaciology and cryopedology*, Oct. 1980, 2(4), p.18-21, In Chinese with English summary.

Glacier ablation, Meltwater, Runoff, Ice temperature, Air temperature.

35-2914

Terrestrial stereophotogrammetric surveying and mapping in the region of Mt. Qomolangma, the Batura Glacier in Karakoram.

Wang, W., et al, *Journal of glaciology and cryopedology*, Oct. 1980, 2(4), p.22-28, In Chinese with English summary.

Cheng, J.

Glaciology, Mountain glaciers, Mapping, Accuracy, Stereophotography, Photogrammetric surveys, Landforms.

35-2915

Late-glacial floras in eastern China.

Kong, Z., et al, *Journal of glaciology and cryopedology*, Oct. 1980, 2(4), p.29-32, 9 refs., In Chinese with English summary.

Du, N.

Paleoclimatology, Alpine landscapes, Vegetation.

35-2916
Pore water pressure of saturated gravel during freezing.
Chen, X., et al, *Journal of glaciology and cryopedology*, Oct. 1980, 2(4), p.33-37, 5 refs., In Chinese with English summary.
Gravel, Freezing, Soil water migration, Water pressure, Frost heave, Frost penetration, Analysis (mathematics).

35-2917
Freezing-thaw regularity of railway bed in the permafrost region on the Qinghai-Xizang Plateau.
Zhu, Y., *Journal of glaciology and cryopedology*, Oct. 1980, 2(4), p.38-43, In Chinese with English summary.
Freeze thaw cycles, Railroads, Subgrades, Permafrost beneath structures, Experimentation, Cold weather construction, Frost heave.

35-2918
Hydrogeological characteristics of permafrost and cold regions in Dahinganling.
Zheng, Q., *Journal of glaciology and cryopedology*, Oct 1980, 2(4), p.44-51, 3 refs., In Chinese with English summary.
Permafrost hydrology, Ground water, Water reserves.

35-2919
On the problem of further investigation of the Pleistocene glaciation of eastern China.
Yan, Q., et al, *Journal of glaciology and cryopedology*, Oct. 1980, 2(4), p.52-57, 21 refs., In Chinese with English summary.
Xu, S.
Glaciation, Pleistocene, Paleoclimatology, Climatic changes.

35-2920
Glacial boulder of Nongnongping Dukou.
Jing, C., *Journal of glaciology and cryopedology*, Oct. 1980, 2(4), p.58, In Chinese with English summary.
Glacial deposits, Rocks.

35-2921
Some cognizance of the formation of glacial meltwater sedimentation.
Zhang, H., *Journal of glaciology and cryopedology*, Oct. 1980, 2(4), p.59-60, In Chinese with English summary.
Glacial deposits, Meltwater, Sediments.

35-2922
Recent research of snow and ice in the World (3).
Zhang, X., *Journal of glaciology and cryopedology*, Oct. 1980, 2(4), p.61-65, In Chinese with English summary.
Snow surveys, Ice surveys, Research projects.

35-2923
Measuring ground temperature of permafrost with thermistor.
Cheng, G., *Journal of glaciology and cryopedology*, Oct. 1980, 2(4), p.66-68, In Chinese with English summary.
Permafrost thermal properties, Soil temperature, Thermistors.

35-2924
Discussion on determining the content of (-2)(SO)4.
Cheng, W., *Journal of glaciology and cryopedology*, Oct. 1980, 2(4), p.70-71, In Chinese with English summary.
Snowmelt, Water chemistry, Meltwater.

35-2925
From Chinese Society of Glaciology and Cryopedology. *Journal of glaciology and cryopedology*, Oct. 1980, 2(4), p.72-79, In Chinese with English summary.
Organizations, Glaciology, Geocryology.

35-2926
Lime requirement methods for cold-region soils.
Loynachan, T.E., *Soil Science Society of America. Journal*, Jan.-Feb. 1981, 45(1), p.75-80, 23 refs.
Soil chemistry, Cold weather tests, Agriculture, Chemical properties, Calcium oxides.

35-2927
Human settlements in the Arctic.
ECE Symposium on Human Settlements Planning and Development in the Arctic, Godthåb, Greenland, Aug 18-25, 1978, New York, Pergamon Press, 1980, 125p.
Urban planning, Cold weather construction, Permafrost beneath structures, Thermal insulation, Utilities, Heating.

35-2928
Eastern-western Arctic sea ice analysis. U.S. Naval Polar Oceanography Center, Suitland, 1979, 104p.
Sea ice distribution, Maps, Remote sensing, Ice edge, Seasonal variations, Arctic Ocean.

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35-2989
Aerosynoptic conditions starting thaws over Georgia. [Aerosinopticheskie usloviia vozniknovenila ottepeleĭ na territorii Gruzii],
Kordzakhiia, R.S., *Zakavkazskiĭ regional'nyĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1980, Vol.74, p.89-94, In Russian. 3 refs.
Synoptic meteorology, Air temperature, Snow melting, Thawing, Meteorological data, Meteorological charts, USSR—Caucasus.

35-2990
Modeling the evolution of ice aerosol, generated by carbon dioxide granules, in the turbulent wake behind the granules. [Modelirovanie evoliutsii ledianogo aerozolia generirovannogo granuloĭ tverdoĭ uglekisloty v turbulentnom aerodinamicheskom sliede za granuloĭ khladoreagenta],
Bakhanov, V.P., et al, *Moscow. Ukrainskiĭ regional'nyĭ nauchno-issledovatel'skiĭ institut Trudy*, 1980, Vol. 178, p.41-50, In Russian. 14 refs.
Manzhara, A.A.
Cloud seeding, Aerosols, Nucleating agents, Dry ice (trademark), Ice nuclei, Mathematical models.

35-2991
Studying the effect of crystal shape on properties of mixed stratiform clouds. [Issledovanie vliianila formy kristallov na svoĭstva smeshannykh sloistoobraznykh oblakov],
Bulkov, M.V., et al, *Moscow. Ukrainskiĭ regional'nyĭ nauchno-issledovatel'skiĭ institut Trudy*, 1980, Vol 178, p.51-63, In Russian. 9 refs.
Dorman, B.A.
Supercooled clouds, Ice nuclei, Ice crystal structure, Mathematical models.

35-2992
Possibility of more effective use of AgI aerosol in cloud seeding. [O vozmozhnosti bolee effektivnogo ispol'zovaniia aerozolia AgI pri aktivnykh vozdeĭstviiakh na oblaka],
Bakhanova, R.A., et al, *Moscow. Ukrainskiĭ regional'nyĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1980, Vol. 178, p.98-101, In Russian. 7 refs.
Kiselev, V.I., Olelnik, R.V.
Cloud seeding, Artificial nucleation, Nucleating agents, Silver iodide.

35-2993
Evaluating quantities of free silver separating on AgI aerosol particles exposed to ultraviolet radiation. [Otsenka kolichestva svobodnogo serebra vydeliaiushchegosia na aerozol'noĭ chastitse AgI pri obluchenii ee UF svetom],
Bakhanova, R.A., *Moscow. Ukrainskiĭ regional'nyĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1980, Vol 178, p.102-106, In Russian. 9 refs.
Cloud seeding, Artificial nucleation, Nucleating agents, Silver iodide.

35-2994
Peculiarities of hailstone thawing and corona discharge in electrical fields. [Ob osobennostiakh taianiia i koronirovanii gradin v elektricheskom poleĭ],
Diachuk, V.A., *Moscow. Ukrainskiĭ regional'nyĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1980, Vol 178, p.107-118, In Russian. 20 refs.
Hailstones, Ice melting, Hailstone electrification.

35-2995
Quantitative characteristics of turbulence in stratiform clouds and artificial crystallization zones. [Nekotorye kolichestvennye kharakteristiki turbulentnosti v sloistoobraznykh oblakakh i zonakh iskusstvennoĭ kristallizatsii],
Kudriavtseva, S.K., *Moscow. Ukrainskiĭ regional'nyĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1980, Vol. 178, p.124-137, In Russian. 15 refs.
Weather modification, Cloud seeding, Supercooled clouds, Artificial nucleation, Ice nuclei.

35-2996
Studying the height of the upper boundary of winter frontal clouds from radar data. {Issledovanie vysoty verkhnei granitsy zimnikh frontal'nykh oblakov po radiolokatsionnym dannym},
Zabolotskaia, T.N., et al, *Moscow. Ukrainskii regional'nyi nauchno-issledovatel'skii institut. Trudy*, 1980, Vol. 178, p.142-145, In Russian.
Muzyka, A.I.
Fronts (meteorology), Cloud cover, Supercooled clouds, Airborne radar, Radar echoes, Cloud seeding.

35-2997
Construction of foundations on peat soils. {Ustroistvo fundamentov na zatorfovannykh gruntakh},
Konovalov, P.A., Moscow, Stroiizdat, 1980, 161p., In Russian with English table of contents enclosed. 81 refs.
Organic soils, Peat, Bearing strength, Foundations, Piles, Soil compaction, Drainage, Sands, Earth fills.

35-2998
Using liquid fuels at low temperatures. {Primenenie zhidkikh topliv pri nizkikh temperaturakh},
Englin, B.A., Moscow, Khimiia, 1980, 207p., In Russian with English table of contents enclosed 228 refs.
Airplanes, Motor vehicles, Fuels, Tanks (containers), Icing, Fuel additives, Hydrates, Ice formation, Ice crystals, Cold weather performance, Bibliographies.

35-2999
Calculating heat transfer between water and atmosphere in the North Atlantic. {K raschetu teploobmena okeana i atmosfery v Severnoi Atlantike},
Goroshkova, I.N., et al, *Leningrad. Gidrometeorologicheskii nauchno-issledovatel'skii tsentr SSSR. Trudy*, 1980, Vol.229, p.32-36, In Russian. 11 refs.
Nesterov, E.S.
Air water interactions, Heat transfer, Weather forecasting, Long range forecasting, Atlantic Ocean.

35-3000
Space correlation of the dates of ice appearance on seas of the European USSR. {Prostranstvennaia korreliatsiia srokov poiavleniia l'da na moriakh evropeiskoi chasti SSSR},
Sheremetevskaia, O.I., et al, *Leningrad. Gidrometeorologicheskii nauchno-issledovatel'skii tsentr SSSR. Trudy*, 1980, Vol.229, p.69-76, In Russian. 6 refs.
Puchkov, A.V.
Sea ice, Ice formation, Ice forecasting, Ice conditions, Ice reporting.

35-3001
Assembly for heating and drying concrete aggregates in a vibro-fluidized layer. {Ustanovka dlia razogreva i sushki zapolnitelei betona v vibrokipiashchem sloe},
Zemzerov, S.N., et al, *Beton i zhelezobeton*, Dec 1980, No.12, p.27, In Russian. 2 refs.
Sizikov, S.A., Rusheliuk, K.S.
Winter concreting, Concrete aggregates, Concrete heating, Drying, Construction equipment.

35-3002
Relation between the frost resistance criterion and the real frost resistance of concretes. {O sviazi kriteriia morozostoikosti s real'noi morozostoikost'iu betonov},
Sheikin, A.E., et al, *Beton i zhelezobeton*, Jan. 1981, No.1, p.19-20, In Russian. 4 refs.
Dobshits, L.M.
Winter concreting, Concrete freezing, Frost resistance, Cements, Wettability, Concrete strength, Concrete hardening, Analysis (mathematics).

35-3003
Roadbeds built of high-moisture earth. {Zemlianoe polotno iz gruntov povyshennoi vlazhnosti},
Dobrov, E.M., et al, *Avtomobil'nye dorogi*, Oct. 1980, No.10, p.3-4, In Russian. 5 refs.
Roadbeds, Earth fills, Earthwork, Soil freezing, Frost heave, Design.

35-3004
Accounting for ice conditions when building bridge crossings. {Uchet ledovykh uslovii pri vozvedenii mostovykh perekhodov},
Koren'kov, V.A., *Avtomobil'nye dorogi*, Oct 1980, No.10, p.10-11, In Russian. 2 refs.
Icebound rivers, Bridges, Piers, Supports, Ice loads, Ice breakup, Ice jams, Design.

35-3005
Using liquid chlorides in winter on slippery roads. {Ispol'zovanie zhidkikh khloridov dlia bor'by s zimnei skol'zkost'iu na dorogakh},
Rudakov, L.M., et al, *Avtomobil'nye dorogi*, Oct. 1980, No.10, p.11, 21, In Russian.
Arbuzov, V.A.
Pavements, Winter maintenance, Ice prevention, Antifreezes, Roads.

35-3006
Promising compounds for soil stabilization. {Perspektivnye sostavy dlia ukrepleniia gruntov},
Khabibullina, E.N., et al, *Avtomobil'nye dorogi*, Oct. 1980, No.10, p.14-15, In Russian. 4 refs.
Zgadzai, L.K.
Soil stabilization, Cements, Resins, Roads, Frost resistance.

35-3007
Concrete with combined chemical admixtures. {Beton s kompleksnymi khimicheskimi dobavkami},
Grushko, I.M., et al, *Avtomobil'nye dorogi*, Oct. 1980, No.10, p.23-24, In Russian.
Valiavskii, V.I., Kozakov, V.N.
Concretes, Cements, Concrete admixtures, Polymers, Resins, Air entrainment, Concrete strength, Frost resistance.

35-3008
Technical-economic justification of road construction in the Baykal Amur railroad area. {Tekhniko-ekonomicheskoe obosnovanie stroitel'stva dorog v zone BAM},
Podymalova, T.P., *Avtomobil'nye dorogi*, Dec 1980, No.12, p.7-8, In Russian.
Roads, River crossings, Permafrost beneath structures, Cost analysis, Baykal Amur railroad, Pavements, Roadbeds.

35-3009
Using rock salt byproducts for preventing road pavement icing. {Ispol'zovanie galitovykh otkhodov dlia bor'by s gololedom},
Ermolenko, V.A., et al, *Avtomobil'nye dorogi*, Dec 1980, No.12, p.15-16, In Russian. 3 refs.
Ryzhevich, I.I., Pasternatskii, V.A.
Roads, Pavements, Icing, Ice prevention, Wastes, Salting.

35-3010
Land-based stereophotogrammetric surveying of an avalanche formation section of a road. {Obsledovanie lavinoopasnogo uchastka avtomobil'noi dorogi sposobom nazemnoi stereofotogrammetricheskoi s"emki},
Maslovskii, E.B., et al, *Avtomobil'nye dorogi*, Dec. 1980, No.12, p.20-21, In Russian. 3 refs.
Abornikov, V.N., Anokhin, K.V.
Roads, Avalanches, Avalanche formation, Photogrammetry, Surveys, Mapping.

35-3011
Reliability of electrical equipment under northern conditions. {Nadezhnost' elektrooborudovaniia v severnykh usloviiakh},
Men'shov, B.G., et al, *Gazovaia promyshlennost'*, Oct 1980, No.10, p.25, In Russian.
Ershov, M.S., Zhukov, IU.S., Shkuta, A.F.
Petroleum industry, Electric equipment, Permafrost beneath structures.

35-3012
Exhibition *The Scientific-Technical Creative Power of Youth—80*, for construction sites of western Siberia. {NTTM-80 Tvorcheskaia molodezh'—stroikam Zapadnoi Sibiri}, *Gazovaia promyshlennost'*, Oct. 1980, No.10, p.26-27, In Russian.
Construction equipment, All terrain vehicles, Gas pipelines, Residential buildings, Permafrost beneath structures.

35-3013
Construction of deep sea piers in the Arctic. {Stroitel'stvo morskogo glubokovodnogo pirsa v Arktike},
Tsaliuk, I.G., et al, *Transportnoe stroitel'stvo*, Apr 1981, No.4, p.17-18, In Russian.
Semerenko, I.M.
Piers, Hydraulic fill, Ice loads, Foundations, Design, Cold weather construction, Sheet piles.

35-3014
Studying frost resistance of concrete. {Issledovanie morozostoikosti betona},
Poliakov, B.I., et al, *Transportnoe stroitel'stvo*, Apr 1981, No.4, p.52-53, In Russian.
Goncharov, V.V.
Winter concreting, Concrete aggregates, Pavements, Concrete admixtures, Cements, Roads, Concrete freezing, Concrete strength, Frost resistance, Water content.

35-3015
Blast treatment effect on bearing strength of St3 steel at low temperatures. {Vliianie obrabotki vzryvom na nesushchuiu sposobnost' svarnykh soedinenii stali St3 pri nizkikh temperaturakh},
Petushkov, V.G., et al, *Avtomaticheskaia svarka*, June 1980, No.6, p.11-12, In Russian. 7 refs.
Kasatkin, S.B.
Steel structures, Welding, Pipelines, Joints (junctions), Bearing strength.

35-3016
Surfacing alloys for increasing service life of machine details working at low temperatures. {Naplavochnye splavy dlia povysheniia sroka sluzhby detalei mashin rabotaiushchikh pri nizkikh temperaturakh},
Grinberg, N.A., et al, *Avtomaticheskaia svarka*, July 1980, No.7, p.52-54, In Russian. 6 refs.
Mamaev, P.N.
Excavation, Equipment, Metals, Earthwork, Welding, Permafrost.

35-3017
Sea level, ice and climatic change; Proceedings of the Symposium, 7-8 Dec. during the 17th General Assembly of IUGG, Canberra.
Allison, I., ed, *International Association of Hydrological Sciences Publication*, 1981, No 131, 471p. For selected papers see 35-3018 through 35-3041, or F-24655 through F-24665, F-24667 through F-24669, I-24666 and I-24670.
Climatic factors, Paleoclimatology, Meetings, Glaciation, Glaciers, Glaciology, Ice sheets, Sea level, Climate.
The major objective of the symposium was to review current ideas and recent results on the processes and the effects of interactions between sea level, ice, and climatic change on time scales of 100 to 10,000,000 years. The six invited review papers and all contributed papers read at the symposium are presented in this volume, mostly in full. The papers have been grouped into two major sections: ice and snow as elements in the weather and climate system and as indicators of change, and features and interactions of sea level, ice and climate in the Quaternary.

35-3018
Climate and glaciers.
Kuhn, M., *International Association of Hydrological Sciences. Publication*, 1981, No.131, Sea level, ice and climate change proceedings of the symposium held 7-8 Dec. 1978, edited by I. Allison, p.3-20, Refs p.18-20.
Climatic factors, Glacier mass balance, Glacier heat balance, Glacier melting.

35-3019
Recent fluctuations of glaciers in the eastern part of Nepal Himalayas.
Fushimi, H., et al, *International Association of Hydrological Sciences. Publication*, 1981, No.131, Sea level, ice and climatic change proceedings of the symposium held 7-8 Dec. 1979, edited by I. Allison, p.21-29, Refs. p.27-29.
Ohata, T., Higuchi, K.
Glacier oscillation, Mountain glaciers, Glacier ablation, Glacier mass balance, Glacier thickness, Himalaya Mountains.

35-3020
Derivation of past climate changes from observed changes of glaciers.
Smith, I.N., et al, *International Association of Hydrological Sciences. Publication*, 1981, No.131, Sea level, ice and climatic change: proceedings of the symposium held 7-8 Dec. 1979, edited by I. Allison, p.31-52, Refs. p.50-52.
Budd, W.F.
Glacier oscillation, Glacier mass balance, Climatic changes, Glacier flow, Models, Mathematical models.

35-3021
Ice core studies from Mt. Kenya, Africa, and their relationship to the other tropical ice core studies.
Thompson, L.G., *International Association of Hydrological Sciences. Publication*, 1981, No.131, Sea level, ice and climatic change: proceedings of the symposium held 7-8 Dec. 1979, edited by I. Allison, p.55-62, 9 refs.
Climatic changes, Mountain glaciers, Ice cores, Paleoclimatology, Particles, Glacier ice, Radioactivity, Air temperature, Oxygen isotopes, Kenya—Kenya, Mount.

35-3022
Lewis Glacier (Mt. Kenya) and possible links tropical climate.
Vincent, C E., et al, *International Association of Hydrological Sciences. Publication,* 1981, No 131, Sea level, ice and climatic change: proceedings of the symposium held 7-8 Dec. 1979, edited by I Allison, p 63-78, 18 refs.
Davies, T.D., Brimblecombe, P.
Ice cores, Glacier ice, Mountain glaciers, Climatic changes, Glacier ablation, Stratigraphy, Ice composition, Particles, Kenya—Kenya, Mount.

35-3023
Climatic role of snow covers.
Kukla, G., *International Association of Hydrological Sciences. Publication,* 1981, No.131, Sea level, ice and climatic change· proceedings of the symposium held 7-8 Dec 1979, edited by I Allison, p.79-107. Refs. p.100-107.
Climatic changes, Paleoclimatology, Snow cover effect, Air pollution, Aerosols, Carbon dioxide, Snow melting, Microclimatology, Albedo, Weather, Models.

35-3024
Relationships between snow distribution and climate in mountain areas.
Yamada, T., et al, *International Association of Hydrological Sciences. Publication,* 1981, No.131, Sea level, ice and climatic change. proceedings of the symposium held 7-8 Dec. 1979, edited by I. Allison, p.109-118, 7 refs.
Suizu, S., Nishimura, H., Wakahama, G.
Climate, Snow cover distribution, Forest lines, Mountains, Alpine landscapes, Snow accumulation, Snow cover effect.

35-3025
Ecological roles of river icings in the Tsichu River Valley, Northwest Territories, Canada.
Gill, D., et al, *International Association of Hydrological Sciences. Publication,* 1981, No.131, Sea level, ice and climatic change· proceedings of the symposium held 7-8 Dec. 1979, edited by I. Allison, p.119-125, 15 refs.
Kershaw, G.P
Animals, River flow, River ice, Snow cover effect, Trees (plants), Ecosystems, Ecology, Canada—Northwest Territories—Tsichu River.

35-3026
Review of sea-ice weather relationships in the Southern Hemisphere.
Ackley, S.F., *International Association of Hydrological Sciences. Publication.* 1981, No.131, MP 1426, Sea level, ice and climatic change: proceedings of the symposium held 7-8 Dec. 1979, edited by I. Allison, p.127-159, Refs. p.157-159.
Sea ice distribution, Weather, Wind (meteorology), Ocean currents, Antarctica.
Within the last decade data on sea ice from satellite coverage have become available for the Southern Hemisphere The data record is reviewed with some consideration given to the different mechanisms of ice advection by wind forcing, thermodynamic growth, and ocean mixing These mechanisms control the ice edge around Antarctica and lead to the characteristic advance-retreat relationships for the Weddell Sea, East Antarctica, and the Ross Sea. Recent statistical and function (EOF) analyses have shown two primary areas of higher annual variation of sea ice conditions which are presumed to be of dynamic (winds and currents) rather than thermodynamic (temperature) origin. It is postulated that atmospheric forcing of the sea ice system causes changes in air-sea energy transfers that then drive the atmosphere to its own anomaly condition Further correlations that may define the mechanism of sea ice response to the forcing fields and supply stronger evidence of weather and climate responses to ice variations, may be available by analysis of the Global Weather Experiment drifting buoy data obtained during 1979 (Auth. mod.)

35-3027
Antarctic sea ice growth and oceanic heat flux.
Allison, I., *International Association of Hydrological Sciences. Publication,* 1981, No.131, Sea level, ice and climatic change: proceedings of the symposium held 7-8 Dec. 1979, edited by I. Allison, p.161-170, 15 refs.
Ice heat flux, Sea ice, Ice formation, Ice melting, Antarctica—Mawson Station.
The classical relationship between the thickness of a floating ice cover and air temperature, the Stefan law, greatly overestimates the growth rate of Antarctic sea ice, because, among other simplifications, it neglects the role of heat transfer from the ocean to the ice at the lower boundary. Sea ice measurements from near Mawson, Antarctica, are used to show that, by modifying the Stefan law to account for this heat exchange, both the growth and decay of the ice cover can be followed Air temperature and ice thickness measurements are used to estimate the ocean heat flux for several years at Mawson, these estimates agree well with heat flux values calculated from more detailed data. The ocean heat flux shows systematic variation throughout the season and is in part controlled by the ice growth process itself The flux is greatest initially when brine rejected by the rapidly growing ice sets up thermohaline convection in the underlying water. As the rate of ice growth and brine rejection decreases, so does the convection and the heat flux to the lower ice boundary drops off A second peak in the heat flux, occurring in September-October, is possibly linked with large scale meridional heat advection in the southern ocean. The oceanic heat flux estimated for several other Antarctic stations shows the same pattern as at Mawson (Auth.)

35-3028
Variations of sea ice conditions in Lützow-Holm Bay area, in Antarctica in the last 20 years.
Kusunoki, K., *International Association of Hydrological Sciences. Publication,* 1981, No.131, Sea level, ice and climatic change. proceedings of the symposium held 7-8 Dec. 1979, edited by I. Allison. p.171-176, 4 refs.
Sea ice distribution, Ice conditions, Weather, Climatic factors, Drift, Antarctica—Lützow-Holm Bay.
To elucidate the local sea ice and weather interaction in the Lützow-Holm Bay area, ice data collected by the annual relief ships of the Japanese Antarctic Research Expedition and pertinent weather and ice data from shore stations and satellites are analyzed. The edge of the pack ice on the meridian of Showa station retreated about 4 km/day in Dec.-Feb., leaving a fast ice fringe about 45 km in width. Shipboard observations revealed that the average speed of ice drift was in the range of 5-30 cm/s to 250 (west). Satellite data indicated a maximum extension of the pack ice edge to 55-60 S in mid winter and rapid retreat in Nov.-Jan Experience of navigability of relief ships suggests a 10-year cycle of favorable ice conditions, however a plausible explanation in terms of ice-weather interaction remains to be found. As an example of changes in ice conditions associated with cyclonic activity in winter, data from Showa station for 1977 are presented. (Auth.)

35-3029
Sea-ice atmosphere interactions in the Weddell Sea using drifting buoys.
Ackley, S.F., *International Association of Hydrological Sciences. Publication.* 1981, No 131, MP 1727, Sea level, ice and climatic change. proceedings of the symposium held 7-8 Dec 1979, edited by I Allison, p.177-191, 23 refs.
Sea ice, Atmospheric circulation, Pack ice, Atmospheric pressure, Drift, Air temperature, Wind factors, Weddell Sea.
Air-dropped data buoys were placed on the Weddell Sea pack ice during December 1978 These buoys transmit information via the NIMBUS satellite giving data on their position, surface pressure, and surface temperature The velocities of four buoys during fall showed values up to 40 cm/s (35 km/day) The highest sustained velocities appear to coincide with sudden drops in air temperature Schwerdtfeger (1979) has postulated a model of winds in the western Weddell Sea dominated by thermal rather than pressure gradient forces due to the damming of cold air from continental barrier and katabatic winds against the mountains of the Antarctic Peninsula. This model is examined to explain the drift rates associated with cold air outbreaks. (Auth)

35-3030
Effect of sea ice on a general circulation model of the Southern Hemisphere.
Simmonds, I., *International Association of Hydrological Sciences. Publication,* 1981, No.131, Sea level, ice and climatic change proceedings of the symposium held 7-8 Dec. 1979, edited by I. Allison, p.193-206. Refs. p.205-206.
Atmospheric circulation, Atmospheric pressure, Ice heat flux, Mathematical models, Antarctica.
A general circulation model of the Southern Hemisphere has been used to test the sensitivity of hemispheric climate to changes in the sea ice cover around Antarctica. Two simulations which differed only in the specification of sea ice were performed When integrated over the hemisphere, it was found that the total flux of latent and sensible heat was almost independent of sea ice cover. An increase in mean sea level pressure in middle to high latitudes was observed in the ice anomaly experiment, a result opposite to that obtained by other authors in Arctic sea ice experiments However the increase was shown to be qualitatively similar to the observed changes between September and March. The 500 mb level underwent a considerable lifting over a large portion of the Southern Hemisphere, most marked in the vicinity of Antarctica. (Auth)

35-3031
Climate into ice: the isotopic record in polar ice sheets.
Robin, G. de Q., *International Association of Hydrological Sciences. Publication,* 1981, No.131, Sea level, ice and climatic change: proceedings of the symposium held 7-8 Dec 1979, edited by I Allison, p.207-216, Refs. p.214-216.
Climatic changes, Paleoclimatology, Ice sheets, Oxygen isotopes, Ice temperature, Precipitation (meteorology).
A brief survey of processes that control isotopic delta values on polar ice sheets is given along with a summary of various studies of the relationship between mean delta values and mean temperatures Empirical time series studies of mean delta values and mean temperatures indicate that a ratio of delta of between 0 5 and 1 0 fits most data on a time scale ranging from seasonal variations to millennia. However ice core data cannot be used to infer past climatic fluctuations of temperature until allowance has been made for the flow of ice to the drilling site, including allowance for changes of ice sheet dimensions over the period involved Data from two Antarctic ice cores appear consistent with the concept that isotopic profiles indicate changes over wide areas with errors of the expected magnitude (Auth)

35-3032
Evidence of climatic change in Antarctica over the last 30,000 years from the Dome C ice core.
Lorius, C., et al, *International Association of Hydrological Sciences. Publication,* 1981, No.131, Sea level, ice and climatic change: proceedings of the symposium held 7-8 Dec. 1979, edited by I. Allison, p.2 7-225, Refs. p.223-225.
Merlivat, L., Duval, P., Jouzel, J., Pourchet, M
Paleoclimatology, Ice sheets, Climatic changes, Antarctica—Dome C.
Ice core studies provide information on climatic changes and variability beyond the range of instrumental records, and clues to identify physical causes of those variations. As an example the authors summarize some of the results obtained from a 905 m deep ice core collected at Dome C in East Antarctica as part of the International Antarctic Glaciological Project (Auth)

35-3033
Glaciological interpretation of microparticle concentrations from the French 905-m Dome C, Antarctica, core.
Thompson, L.G., et al, *International Association of Hydrological Sciences Publication,* 1981, No 131, Sea level, ice and climatic change· proceedings of the symposium held 7-8 Dec 1979, edited by I Allison, p.227-234, 10 refs.
Mosley-Thompson, E., Petit, J.R.
Microanalysis, Ice cores, Paleoclimatology, Oxygen isotopes.
Sixty-one sections of the French 905-m Dome C, Antarctic core were analysed for microparticle concentration and size distribution These 6160 samples represent the most detailed microparticle analysis of any core spanning the transition from post-glacial to the last full glacial Average particle concentrations in late glacial ice exhibit an 800% increase over average particle concentrations in Holocene ice. A microparticle time scale has been developed for the core and indicates a minimum age of 22,000 years and a maximum age of 30,000 years for the bottom of the core. (Auth.)

35-3034
Total gas content of ice and past changes of the northwest Greenland ice sheet.
Raynaud, D., et al, *International Association of Hydrological Sciences. Publication,* 1981, No.131, Sea level, ice and climatic change· proceedings of the symposium held 7-8 Dec. 1979, edited by I Allison, p 235-237, 5 refs.
Whillans, I.M.
Gases, Gas inclusions, Pleistocene, Climatic changes, Sea level, Glacier surges, Greenland.

35-3035
Measured and computed temperature profiles at Mizuho Station, East Antarctica.
Nishio, F., et al, *International Association of Hydrological Sciences Publication,* 1981, No 131, Sea level, ice and climatic change proceedings of the symposium held 7-8 Dec 1979, edited by I Allison, p 239-246, 12 refs.
Fujii, Y , Kusunoki, K.
Ice sheets, Ice temperature, Climatic changes, Antarctica—Mizuho Station.
At Mizuho station in East Antarctica, an ice temperature profile down to 145 m was measured in 1977 The measured profile near the surface shows a large negative temperature gradient, i e the surface temperature is higher than in lower layers, however only small negative temperature gradients are obtained from theoretical steady state temperature profiles under the assumption present accumulation rate, flow rate and ice thickness. The observed negative gradient is interpreted as climatic warming or the lowering of the surface elevation of the ice sheet or the superposition of both effects Detailed analysis of the measured and computed temperature profiles suggests that either a warming trend of about 1 C or the thinning of the ice sheet by about 70 m began 50 years ago Oxygen isotope analysis of snow in the upper layers also suggests that the start of warming was about 50-70 years ago. (Auth.)

35-3036
Variations in valley glacier activity in the Transantarctic Mountains as indicated by associated flow bands in the Ross Ice Shelf.
Bentley, C R., *International Association of Hydrological Sciences. Publication,* 1981, No.131, Sea level, ice and climatic change· proceedings of the symposium held 7-8 Dec. 1979, edited by I. Allison, p.247-251
Glacier oscillation, Sounding, Ice cover thickness.
Radar sounding records from the grid eastern Ross Ice Shelf show striking variations in basal reflectivity closely associated with the source of the ice Ice from glaciers shows a strong basal echo, whereas on ice from between the glaciers the echo is weak or absent, presumably due to brine infiltration The width and continuity of the strongly reflecting flow bands, as

they are traced across the Ross Ice Shelf, provide information about the relative activity of the glaciers compared with that of the surrounding ice Large changes in activity within the last 1500 years have been found. The cause is not certain, but the author believes it to be related to past oscillations of the glacier grounding lines resulting from changes in ice shelf thickness. A good correlation between glacier activity and the oxygen isotope records from ice cores at Dome C and Byrd stations strongly suggest some palaeoclimatic significance The continuity of the glacier flow-band record precludes any major surges of the West Antarctic ice sheet in the 1500 years (Auth.)

35-3037
Mass balance studies in East Antarctica.
Morgan, V.I., et al, *International Association of Hydrological Sciences. Publication,* 1981, No.131, Sea level, ice and climatic change: proceedings of the symposium held 7-8 Dec. 1979, edited by I. Allison, p.253-260, Refs. p.259-260.
Jacka, T.H.
Ice sheets, Ice cover thickness, Mass balance, Antarctica—East Antarctica.
Measurements were made of ice thickness, flow and snow accumulation along a traverse route in MacRobertson and Kemp lands in East Antarctica. The ice flux across the route is calculated to be 4.6 Gt/a Comparison with the calculated mass input from snow accumulation in the basin south of the traverse route (9 ± Gt/a) shows that there is an imbalance of ±100%. Similar studies indicate that other areas of East Antarctica have a positive mass budget. The implications are briefly discussed. (Auth.)

35-3038
Responses of ice sheets to environmental changes.
Young, N.W., *International Association of Hydrological Sciences. Publication,* 1981, No.131, Sea level, ice and climatic change proceedings of the symposium held 7-8 Dec. 1979, edited by I. Allison, p.331-360, Refs. p.355-360.
Ice sheets, Thermodynamics, Ice shelves, Ice pressure, Stresses, Ice temperature, Climatic changes, Antarctica—Ross Ice Shelf, Antarctica—West Antarctica.
The effect of a climatic warming is investigated for the West Antarctic ice sheet and the Ross Ice Shelf. The present temperature and stress fields are calculated using known data, wherever available, along a flowline in the Ross Ice Shelf. Calculated values of temperature closely match measured values at two borehole sites, J9 and Q13 The change of temperature at depth with time, following a 5 C increase at the surface, is calculated and the changes in flow rates in response to this warming are computed It is found that after 50 years, negligible change has occurred, but after 1000 years, temperatures and strain rates have reached a new equilibrium for most of the ice shelf. On the other hand, by that time, the ice discharge rate at the outlet of an ice stream has increased by half the potential total increase as a result of changes in the interior of the ice sheet As much as 20,000 years would be required for the thick interior ice to reach a new equilibrium. (Auth. mod.)

35-3039
Climatically and non-climatically induced glacier changes: a review of Soviet studies.
Kotlıakov, V.M., et al, *International Association of Hydrological Sciences. Publication,* 1981, No.131, Sea level, ice and climatic change: proceedings of the symposium held 7-8 Dec. 1979, edited by I. Allison, p.361-368, 19 refs.
Grosval'd, M.G.
Pleistocene, Climatic changes, Paleoclimatology, Glaciation, Glacier oscillation.
New Soviet studies on the relationships between climate and ice masses are reviewed The mechanisms of "cosmic signal amplification" operating within the atmosphere-ocean-glaciers system were developed to gain insight into the causes of glacier changes with duration of 10,000 to 100,000 years The "saw-toothed" glacial cycles, in particular gradual buildups of the Quaternary ice sheets followed by abrupt deglaciations, might be accounted for by the fact that the buildups led to an increase in the proportion of marine glaciers, implying an increase in mechanical instability of glacier systems and their collapse by surges Continental drift and resulting alterations in the pattern of ocean currents are being considered among the causes of the major glacier changes occurring on the time sale of 10,000,000 to 1,000,000 years Some Soviet students are interpreting the inception and development of the antarctic glaciation in terms of the Australian-Antarctic partition, opening up the Drake Passage and the establishment of the circumantarctic current. (Auth mod)

35-3040
Growth and retreat of ice sheets in response to orbital radiation changes.
Budd, W.F., et al, *International Association of Hydrological Sciences. Publication,* 1981, No.131, Sea level, ice and climatic change. proceedings of the symposium held 7-8 Dec. 1979, edited by I. Allison, p.369-409, Refs. p.403-409.
Smith, I.N.
Paleoclimatology, Glaciation, Climatic changes, Glacier ablation, Glacier alimentation, Precipitation (meteorology), Mathematical models, Solar radiation.

35-3041
Climatic change, ice sheets and sea level.
Flohn, H , *International Association of Hydrological Sciences. Publication,* 1981, No.131, Sea level, ice and climatic change. proceedings of the symposium held 7-8 Dec. 1979, edited by I. Allison, p.431-440, Refs. p.437-440.
Paleoclimatology, Climatic changes, Ice sheets, Sea level, Pleistocene, Antarctica—West Antarctica.
A review is given of some of the highlights of this symposium devoted to the geophysical background of palaeoclimatology. Simultaneous investigations based on planktonic and benthic micro-fossils from ocean cores gave new insights into the physical mechanism of glaciations and deglaciations, possibly pointing to a rather rapid collapse of the West Antarctic ice sheet. The occurrence of abrupt coolings at the end of interglacial periods presents a new challenge; the same is true for the circulation shift, at 18,000 years BP, from ice-building to ice-demolishing patterns. Oceanic upwelling/downwelling may have largely controlled the global water and carbon dioxide budget. Estimates of the speed of the waxing and waning of ice sheets and the equivalent sea level changes are given. New evidence has been presented on air particle and carbon dioxide content in the climatic history of the last 30,000 years such secondary feedback effects may play a decisive role (Auth)

35-3042
Problems of utilization and preservation of natural resources in Siberia. [Problemy ispol'zovaniia i okhrany prirodnykh resursov Sibiri],
Saks, V.N., ed, Novosibirsk, Nauka, 1980, 136p , In Russian. For selected papers see 35-3043 and 35-3044. Refs. passim.
River basins, Snow cover distribution, Spaceborne photography, Snow surveys, Taiga, Landscape types, Cryogenic soils, Land reclamation, Environmental protection.

35-3043
Forecasting spring runoff in the Upper Ob' and Upper Yenisey river basins from satellite information. [Opyt primeneniia kosmicheskoĭ informatsii dlia tseleĭ prognoza vesennego stoka v basseĭnakh rek Verkhneĭ Obi i verkhnego Eniseia],
Vostriakova, N.V., Problemy ispol'zovaniia i okhrany prirodnykh resursov Sibiri (Problems of utilization and preservation of natural resources in Siberia) edited by V.N. Saks, Novosibirsk, Nauka, 1980, p.26-40, In Russian. 7 refs.
River basins, Snow cover distribution, Snow water equivalent, Snow surveys, Spaceborne photography.

35-3044
Evolution of soils in the taiga zone of Siberia and their utilization and preservation. [Evoliutsiia pochv taezhnoĭ zony Sibiri, ikh ispol'zovanie i okhrana],
Gadzhiev, I.M., Problemy ispol'zovaniia i okhrany prirodnykh resursov Sibiri (Problems of utilization and preservation of natural resources in Siberia) edited by V.N. Saks, Novosibirsk, Nauka, 1980, p.128-131, In Russian.
Taiga, Landscape types, Cryogenic soils, Paludification, Petroleum industry, Land reclamation, Drainage, Environmental protection.

35-3045
Studying global factors of climato-morphogenetic phenomena of the Far East. [Issledovanii a global'nykh faktorov klimomorfogeneza Dal'nego Vostoka],
Nikol'skaia, V.V., ed, Vladivostok, 1979, 163p , In Russian For selected papers see 35-3046 and 35-3047. Refs. passim.
Skryl'nik, G.P., ed.
Alpine landscapes, Slope processes, Rock streams, Solifluction, River basins, Alluvium, Permafrost origin, Frozen fines, Loess, Loams, Permafrost structure, Ice veins.

35-3046
Regularities governing material composition of mountain alluvium in different climate of the Far East. [Nekotorye zakonomernosti formirovaniia veshchestvennogo sostava gornogo alliuviia raznykh klimatakh Dal'nego Vostoka],
Korotkiĭ, A.M., et al, Issledovanii global'nykh faktorov klimomorfogeneza Dal'nego Vostoka (Studying global factors of climato-morphogenetic phenomena of the Far East) edited by V.V. Nikol'skaia and G.P. Skryl'nik, Vladivostok, 1979, p 114-117, In Russian. 20 refs.
Ganzeĭ, S.S.
Mountains, Slope processes, Alluvium, Grain size, Rock streams, Solifluction, Flow rate, River basins, Icebound rivers, Naleds, Permafrost, Landscape types, Climatic factors, USSR –Far East.

35-3047
Role of ancient and recent hydroclimatic factors in morphogenesis and lithogenesis of plains in the permafrost zone. [Rol' drevnikh i sovremennykh gidroklimaticheskikh faktorov v morfo- i litogeneze ravnin kriogennoĭ zony],
Gasanov, Sh.Sh., et al, Issledovaniia global'nykh faktorov klimomorfogeneza Dal'nego Vostoka (Studying global factors of climato-morphogenetic phenomena of the Far East) edited by V.V. Nikol'skaia and G.P. Skryl'nik, Vladivostok, 1979, p.143-156, In Russian. 26 refs.
Zimov, S.A.
Frozen fines, Loess, Loams, Ice veins, Permafrost structure, Thermokarst, Permafrost origin.

35-3048
Introduction of useful plants in Yakutia (collection of papers). [Introduktsiia poleznykh rasteniĭ v lAkutii (sbornik nauchnykh trudov)],
Andreev, V.N., ed, Yakutsk, lAkutskiĭ filial SO AN SSSR, 1980, 100p., In Russian with English table of contents enclosed. Refs. passim.
Introduced plants, Cryogenic soils, Permafrost, Plant ecology, Plant physiology, USSR—Yakutia.

35-3049
All-Union symposium on physical bases of recent climatic changes, Moscow, Apr. 23-25, 1979, Vol. 1. [Sbornik 1],
Vsesoiuznyĭ simpozium Fizicheskie osnovy izmeneniia sovremennogo klimata, Moscow, Apr 23-25, 1979, Moscow, 1980, 108p., In Russian. For selected papers see 35-3050 through 35-3052. Refs. passim.
Zastavenko, L.G., ed.
Polar regions, Climatic changes, Air temperature, Sea ice, Ice conditions, Taiga, Microclimatology, Human factors, Snow surveys.

35-3050
Structure of recent fluctuations in climatic conditions of the Arctic. [Struktura sovremennykh kolebaniĭ klimata Arktiki],
Voskresenskiĭ, A I., et al, Vsesoiuznyĭ simpozium Fizicheskie osnovy izmeneniia sovremennogo klimata, Moscow, Apr. 23-25, 1979. Sbornik 1 (All-Union symposium on physical bases of recent climatic changes, Moscow, Apr. 23-25, 1979. (Vol.1) edited by L.G. Zastavenko, Moscow, 1980, p.57-62, In Russian. 5 refs.
Liubarskiĭ, A.N., Petrov, L.S.
Polar regions, Climatic changes, Air temperature, Seasonal variations, Meteorological charts, Sea ice, Ice conditions.

35-3051
Changes in the radiation and thermal energy balance in West Siberia due to human factors. [Izmenenie radiatsionnogo i teploenergeticheskogo balansov v Zapadnoĭ Sibiri pod vliianiem antropogennykh faktorov],
Potapova, L.S., Vsesoiuznyĭ simpozium Fizicheskie osnovy izmeneniia sovremennogo klimata, Moscow, Apr. 23-25, 1979. Sbornik 1 (All-Union symposium on physical bases of recent climatic changes, Moscow, Apr. 23-25, 1979. (Vol. 1) edited by L.G. Zastavenko, Moscow, 1980, p.82-90, In Russian. 3 refs
Land reclamation, Solar radiation, Radiation balance, Heat balance, Vegetation, Surface properties, Albedo, Air temperature, Soil temperature, Human factors, USSR—Siberia.

35-3052
Microclimatic changes in taiga geosystems due to human factors. [Izmenenie mikroklimata v taezhnykh geosistemakh pod vozdeĭstviem antropogennykh faktorov],
Afanas'ev, V.A., et al, Vsesoiuznyĭ simpozium Fizicheskie osnovy izmeneniia sovremennogo klimata, Moscow, Apr. 23-25, 1979. Sbornik 1 (All-Union symposium on physical bases of recent climatic changes, Moscow, Apr. 23-25, 1979. Vol. 1) edited by L.G. Zastavenko, Moscow, 1980, p.90-100, In Russian. 8 refs.
Grigor'ev, G.N., Trofimova, I.E.
Taiga, Microclimatology, Human factors, Solar radiation, Heat balance, Air temperature, Humidity, Soil temperature, Snow cover effect, Snow surveys.

35-3053
Facies of soil cryogenesis and peculiarities of soil profile arrangement in them. [Fatsii pochvennogo kriogeneza i osobennosti organizatsii v nikh pochvennykh profilej],
Makeev, O V , Moscow, Nauka, 1981, 87p., In Russian with English table of contents enclosed. Refs. p.77-86.
Arctic landscapes, Subarctic landscapes, Tundra, Taiga, Permafrost distribution, Cryogenic soils, Soil formation, Soil profiles, Frost action, Geocryology, Vegetation factors, Mapping, Terminology, Classifications.

35-3054
Mycorhiza fungi and mycorhizae of forest-forming species in the North. [Mikoriznye griby i mikorizy lesoobrazuiushchikh porod Severa],
Shubin, V I., ed, Petrozavodsk, 1980, 185p., In Russian with English table of contents enclosed. Refs. p.162-179.
Taiga, Cryogenic soils, Landscape types, Vegetation, Fungi, Plant ecology, Plant physiology, Soil microbiology.

35-3055
Development of agriculture in Siberia and the Far East. [Razvitie sel'skogo khoziaistva Sibiri i Dal'nego Vostoka],
Kashtanov, A.N , ed, Moscow, Kolos, 1980, 352p , In Russian. For selected papers see 35-5056 through 35-3060.
Arctic landscapes, Deserts, Tundra, Land reclamation, Cryogenic soils, Saline soils, Paludification, Soil erosion, Irrigation, Permafrost hydrology, USSR—Siberia.

35-3056
Peculiarities of land reclamation in Siberia and the Far East. [Osobennosti melioratsii zemel' Sibiri i Dal'nego Vostoka],
Shumakov, B.B , Razvitie sel'skogo khoziaistva Sibiri i Dal'nego Vostoka (Development of agriculture in Siberia and the Far East) edited by A.N. Kashtanov, Moscow, Kolos, 1980, p.89-96, In Russian.
Land reclamation, Cryogenic soils, Arctic landscapes, Tundra, Drainage, Irrigation.

35-3057
Equipment used in the development of saline soils and flood-plain lands in West Siberia. [Mekhanizatsiia osvoeniia solontsovykh i poimennykh zemel' v Zapadnoi Sibiri],
Kulebakin, P.G., Razvitie sel'skogo khoziaistva Sibiri i Dal'nego Vostoka (Development of agriculture in Siberia and the Far East) edited by A.N. Kashtanov, Moscow, Kolos, 1980, p.145-148, In Russian.
Land reclamation, Saline soils, Flood plains, Earthwork, Excavation.

35-3058
Rational use of land resources. [Ratsional'noe ispol'zovanie zemel'nogo fonda],
Zakharina, E.S., Razvitie sel'skogo khoziaistva Sibiri i Dal'nego Vostoka (Development of agriculture in Siberia and the Far East) edited by A.N. Kashtanov, Moscow, Kolos, 1980, p.233-235, In Russian.
Taiga, Cryogenic soils, Soil water, Soil temperature, Protective vegetation, Gullies, Land reclamation.

35-3059
Land reclamation methods in the Far East. [Priemy melioratsii zemel' Dal'nego Vostoka],
Stepanov, A.N , Razvitie sel'skogo khoziaistva Sibiri i Dal'nego Vostoka (Development of agriculture in Siberia and the Far East) edited by A N Kashtanov, Moscow, Kolos, 1980, p.247-250, In Russian.
Land reclamation, Paludification, Cryogenic soils, Peat, Thermokarst, Drainage, Drains, Permafrost hydrology.

35-3060
Reclamation of heavy paluded soils in the Amur River area. [Osobennosti melioratsii tiazhelykh pereuvlazhniaiushchikhsia pochv Priamur'ia],
Chernoukhov, A M , Razvitie sel'skogo khoziaistva Sibiri i Dal'nego Vostoka (Development of agriculture in Siberia and the Far East) edited by A.N. Kashtanov, Moscow, Kolos, 1980, p.250-253, In Russian
Cryogenic soils, Paludification, Peat, Drainage, Trenching, Slope processes, Soil erosion.

35-3061
Time-depth and velocity-depth relations in sedimentary basins—a study based on current investigations in the Arctic Islands and an interpretation of experience elsewhere.
Acheson, C.H , *Geophysics*, May 1981, 46(5), p.707-716, 27 refs.
Acoustic measurement, Seismic velocity, Geophysical surveys, Mathematical models, Canada—Northwest Territories—Arctic Archipelago.

35-3062
Biologic-floristic studies related to environmental protection in polar regions. [Biologo-floristicheskie issledovaniia v sviazi s okhranoi prirody v Zapoliar'e],
Shliakov, R.N., ed, Apatity, 1980, 149p., In Russian. For selected papers see 35-3063 through 35-3075. Refs. passim.
Shores, Meadows, Grasses, Arctic landscapes, Human factors, Environmental protection, Deserts, Alpine tundra, Cryogenic soils, Vegetation, Plant ecology, Ecosystems, Plant physiology.

35-3063
Biologic peculiarities of seed germination in some plants growing on Kola Peninsula. [Biologicheskie osobennosti prorastaniia semian nekotorykh rastenii Kol'skogo poluostrova],
Skitkina, A.A , Biologo-floristicheskie issledovaniia v sviazi s okhranoi prirody v Zapoliar'e (Biologic-floristic studies related to environmental protection in polar regions) edited by R.N. Shliakov, Apatity, 1980, p.3-9, In Russian. 5 refs.
Cryogenic soils, Vegetation, Plant ecology, Plant physiology, Environmental protection, USSR—Kola Peninsula.

35-3064
Phytocenotic relations, age spectra and seed productivity of the Arctic sunrose (Helianthemum). [Fitotsenoticheskie sviazi, vozrastnye spektry i semennaia produktivnost' solntsetsveta arkticheskogo],
Filippova, L.N., Biologo-floristicheskie issledovaniia v sviazi s okhranoi prirody v Zapoliar'e (Biologic-floristic studies related to environmental protection in polar regions) edited by R.N. Shliakov, Apatity, 1980, p.9-26, In Russian. 15 refs.
Arctic landscapes, Cryogenic soils, Plant ecology, Plant physiology, Environmental protection.

35-3065
Initial growth stages of *Papaver lapponicum* (A. Tolm.) Nordh.s.str. in the Kola Peninsula. [Nachal'nye etapy razvitiia *Papaver lapponicum* (A Tolm) Nordh.s.str. v usloviiakh Kol'skogo poluostrova],
Andreeva, V.N., Biologo-floristicheskie issledovaniia v sviazi s okhranoi prirody v Zapoliar'e (Biologic-floristic studies related to environmental protection in polar regions) edited by R.N. Shliakov, Apatity, 1980, p.26-39, In Russian. 11 refs.
Environmental protection, Cryogenic soils, Vegetation, Plant ecology, Plant physiology, Introduced plants, USSR—Kola Peninsula.

35-3066
Age spectrum of the Lapland poppy population in the Khibiny Mountains. [Vozrastnoi spektr populiatsii maka laplandskogo v Khibinskikh gorakh],
Andreeva, V.N., Biologo-floristicheskie issledovaniia v sviazi s okhranoi prirody v Zapoliar'e (Biologic-floristic studies related to environmental protection in polar regions) edited by R.N. Shliakov, Apatity, 1980, p.40-49, In Russian. 9 refs.
Alpine landscapes, Cryogenic soils, Vegetation, Plant ecology, Plant physiology, Landscape types, Environmental protection, Alpine tundra, Rock streams.

35-3067
Seed productivity of two species of wood rush *Luzula arcuata* (Wahlb.) Sw. and *L. spicata* (L.) DC. in the Khibiny Mountains. [Semennaia produktivnost' dvukh vidov ozhik—*Luzula arcuata* (Wahlb.) Sw. i. *L. spicata* (L.) DC. v Khibinakh],
Tsareva, V T , Biologo-floristicheskie issledovaniia v sviazi s okhranoi prirody v Zapoliar'e (Biologic-floristic studies related to environmental protection in polar regions) edited by R.N Shliakov, Apatity, 1980, p.49-50, In Russian. 44 refs.
Alpine landscapes, Alpine tundra, Environmental protection, Vegetation, Plant ecology, Plant physiology, Bibliographies.

35-3068
Additional information on the flora of the Lovozerskie Mountains and problems of its protection. [Dopolneniia k flore Lovozerskikh gor i voprosy ee okhrany],
Kostina, V A., Biologo-floristicheskie issledovaniia v sviazi s okhranoi prirody v Zapoliar'e (Biologic-floristic studies related to environmental protection in polar regions) edited by R.N. Shliakov, Apatity, 1980, p.67-71, In Russian. 8 refs.
Alpine landscapes, Cryogenic soils, Vegetation, Environmental protection, Plant ecology.

35-3069
Flora of Srednie Ludy, the Kandalaksha Bay of the White Sea. [Flora Srednikh Lud, Kandalakshskogo zaliva Belogo moria],
Breshna, I.P., Biologo-floristicheskie issledovaniia v sviazi s okhranoi prirody v Zapoliar'e (Biologic-floristic studies related to environmental protection in polar regions) edited by R.N. Shliakov, Apatity, 1980, p.72-83, In Russian. 6 refs.
Tundra, Cryogenic soils, Vegetation, Peat, Plant ecology, Ecosystems.

35-3070
New data on the Chuna Tundra vegetation. [Novye dannye o flore Chuna-tundry],
Syroid, N.A , Biologo-floristicheskie issledovaniia v sviazi s okhranoi prirody v Zapoliar'e (Biologic-floristic studies related to environmental protection in polar regions) edited by R.N. Shliakov, Apatity, 1980, p.83-86, In Russian. 13 refs.
Cryogenic soils, Vegetation, Plant ecology, Ecosystems, USSR—Chuna Tundra.

35-3071
Characteristic epilithophyte lichen synusia in the area of Vud"iavrchorr (Khibiny Mtns.). [Kharakternye epilitnye lishainikovye sinuzii g. Vud"iavrchorr (Khibiny)],
Antonova, I M , Biologo-floristicheskie issledovaniia v sviazi s okhranoi prirody v Zapoliar'e (Biologic-floristic studies related to environmental protection in polar regions) edited by R.N. Shliakov, Apatity, 1980, p.87-95, In Russian. 8 refs.
Arctic landscapes, Alpine tundra, Vegetation, Human factors, Environmental protection, Plant ecology, Ecosystems.

35-3072
Basic liverwort synusia in the Khibiny Mountains and their role in the vegetational cover. [Osnovnye sinuzii pechenochnikov Khibin i ikh rol' v rastitel'nom pokrove],
Konstantinova, N.A., Biologo-floristicheskie issledovaniia v sviazi s okhranoi prirody v Zapoliar'e (Biologic-floristic studies related to environmental protection in polar regions) edited by R.N Shliakov, Apatity, 1980, p.96-107, In Russian. 22 refs.
Alpine tundra, Mosses, Plant ecology, Plant physiology, Ecosystems.

35-3073
Distribution of some adventitious and local plants in the Murmansk area. [K rasprostraneniiu nekotorykh zanosnykh i mestnykh rastenii Murmanskoi oblasti],
Kostolomov, M.N., et al, Biologo-floristicheskie issledovaniia v sviazi s okhranoi prirody v Zapoliar'e (Biologic-floristic studies related to environmental protection in polar regions) edited by R.N. Shliakov, Apatity, 1980, p.108-117, In Russian. 13 refs.
Kuz'min, A.V.
Arctic landscapes, Alpine tundra, Vegetation, Plant ecology, Ecosystems.

35-3074
Biology and distribution of chickweed *(Stellaria media* (L.) Vill.). [K rasprostraneniiu i biologii mokritsy—*Stellaria media* (L.) Vill.],
Shliakova, E.V., Biologo-floristicheskie issledovaniia v sviazi s okhranoi prirody v Zapoliar'e (Biologic-floristic studies related to environmental protection in polar regions) edited by R.N. Shliakov, Apatity, 1980, p.117-131, In Russian. 63 refs.
Shores, Vegetation, Plant physiology.

35-3075
Coastal meadows of the Kandalakshskaya Guba, White Sea. [Primorskie luga Kandalakshskogo zaliva Belogo moria],
Breshna, I P., Biologo-floristicheskie issledovaniia v sviazi s okhranoi prirody v Zapoliar'e (Biologic-floristic studies related to environmental protection in polar regions) edited by R.N. Shliakov, Apatity, 1980, p.132-143, In Russian. 10 refs.
Shores, Meadows, Grasses, Littoral zone, Swamps.

35-3076
Viscoelastic constitutive laws for ice.
Morland, L.W., et al, U.S. Army, European Research Office, Contract No. DAJA37-79-R-0395, Norwich, Gt. Britain, University of East Anglia, Dec. 1980, 56p., 7 refs.
Spring, U.
Ice mechanics, Ice creep, Ice elasticity, Viscoelasticity, Rheology, Stress strain diagrams, Analysis (mathematics), Models, Fluid dynamics, Solid phases.

35-3077
Passive solar heating in Alaska. Final report.
Zarling, J.P., *Alaska. Department of Transportation and Public Facilities. Report,* June 1980, No.AK-RD-81-15, 17p., 8 refs.
Heating, Solar radiation, Thermal insulation, Buildings, Cold weather construction, Design, Computerized simulation, Heat loss.

35-3078
Estuarine perspectives.
Kennedy, V.S., ed, New York, Academic Press, 1980, 533p., Refs. passim. For selected papers see 35-3079 and 35-3080.
Estuaries, Biomass, Plankton, Marine biology, Research projects.

35-3079
Study of plankton ecology in Chesterfield Inlet, Northwest Territories: an arctic estuary.
Roff, J.C., et al, Estuarine perspectives. Edited by V.S. Kennedy, New York, Academic Press, 1980, p.185-197, Refs. p.195-197.
Pett, R.J., Rogers, G.F., Budgell, W.P.
Ecology, Biomass, Plankton, Estuaries, Nutrient cycle, Canada—Northwest Territories—Chesterfield Inlet.

35-3080
Zooplankton in a Canadian arctic estuary.
Evans, M.S., et al, Estuarine perspectives. Edited by V.S. Kennedy, New York, Academic Press, 1980, p.199-210, 25 refs.
Grainger, E.H.
Biomass, Estuaries, Plankton, Marine biology, Polar regions.

35-3081
Proceedings.
Environmental Workshop on Offshore Hydrocarbon Development, 9th, Fairmont Hot Springs, B.C., Canada, May 4-7, 1980, Calgary, Alberta, Canada, Arctic Institute of North America, [1980], 440p., Refs. passim.
Upton, C.R., ed.
Petroleum industry, Oil recovery, Hydrocarbons, Offshore drilling, Oil spills, Ocean environments, Environmental protection, Pipelines, Ocean bottom, Environmental impact, Petroleum transportation.

35-3082
Multi-year sea ice investigation in the East Greenland Current.
Overgaard, S., *Copenhagen. Polyteknisk laereanstalt. Laboratoriet for elektomagnetisk feltteori. Report,* Aug. 1980, No.228, 69p., 15 refs.
Sea ice, Ice electrical properties, Ice salinity, Ice temperature, Ice density, Ice composition, Side looking radar.

35-3083
Contribution to the diatom flora of Arctic Canada: Report 1. Arctic representatives of the genus *Navicula*.
Lichti-Federovich, S., *Canada. Geological Survey. Paper,* 1981, No.81-1A, Its Current research, Part A, p.57-62, 30 refs.
Algae, Sea ice, Marine biology, Subglacial observations, Plankton, Scanning electron microscopy.

35-3084
Experiment in lake drainage, Richards Island, Northwest Territories: a progress report.
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Lakes, Drainage, Periglacial processes, Channels (waterways), Ice wedges, Permafrost hydrology, Frost heave, Experimentation, Canada—Northwest Territories—Richards Island.

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Mudflows, Ground thawing, Vegetation, Environmental impact, Construction, Canada—Northwest Territories—Henrik Lake.

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Glaciation, Glacial deposits, Glacier oscillation, Moraines, Paleoclimatology, Geomorphology, Rocks, Altitude, Canada—Northwest Territories—Bylot Island.

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Oil spills, Water pollution, Computer applications, Models.

35-3092
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Sea ice, Oil spills, Remote sensing.

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Marine biology, Bottom sediment, Canada—Labrador—Makkovik Bay.

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Oil spills, Marine biology, Environmental impact, Physiological effects, Crude oil.

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Frost mounds, Swamps, Shores, Discontinuous permafrost, Environmental impact, Vegetation, Construction, Hummocks, Peat, Sands, Ecology.

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Ice scoring, Ocean bottom, Bottom topography.

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Lake ice, Ice formation, Freezeup, Ice conditions, Wind factors, Distribution, Ice surveys.

35-3099
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Ice navigation, Lake ice, Ice conditions, Cold weather operation, Icebreakers, Ice pressure, Freezeup.

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Offshore structures, Offshore drilling, Ice conditions, Sea ice, Hydrocarbons, Icebergs, Pack ice.

35-3101
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Oil recovery, Economic development, Offshore drilling, Exploration.

35-3102
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Lake ice, Ice conditions, Ice navigation, Ice cover strength, Canada—Labrador—Melville Lake.

35-3103
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Shore erosion, River basins, Estuaries, Polar regions, Human factors, River diversion, Ice conditions, Water resources, Environmental protection, Deltas, Permafrost distribution, Subsea permafrost, Ice navigation, Arctic Ocean.

35-3104
Problems in studying the Arctic environment and preservation of its resources at the present stage of development. [Problemy izucheniia prirody Arktiki i okhrana ee resursov na sovremennom etape osvoeniia],
Treshnikov, A.F., Vsesoiuznoe soveshchanie Priroda Arktiki v usloviiakh mezhzonal'nogo pereraspredeleniia vodnykh resursov, Leningrad, Nov. 25-27, 1980. Tezisy dokladov (All-Union conference on Arctic environment under conditions of interzonal redistribution of water resources, Leningrad, Nov. 25-27, 1980. Summaries of papers) edited by A.F. Treshnikov, Leningrad, 1980, p.4-7, In Russian.
Polar regions, Ice conditions, Permafrost distribution, Natural resources, Water resources, Environmental protection, Air pollution, River diversion, Flow control, Research rpojects, Arctic Ocean.

35-3105
Results of preliminary studies of the Arctic environment for the first stage of partial runoff diversion. [Predvaritel'nye itogi issledovaniia prirody Arktiki dlia obosnovaniia pervoi ocheredi perebroski chasti stoka],
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River diversion, Flow control, Water resources, Estuaries, Hydrology, Ice conditions, Sea ice, Arctic Ocean.

35-3106
Scales of runoff redistribution in the European USSR. [Masshtaby pereraspredelenna stoka na evropeiskoi territorii SSSR],
Berezner, A.S., et al, Vsesoiuznoe soveshchanie Priroda Arktiki v usloviiakh mezhzonal'nogo pereraspredeleniia vodnykh resursov, Leningrad, Nov 25-27, 1980. Tezisy dokladov (All-Union conference on Arctic environment under conditions of interzonal redistribution of water resources, Leningrad, Nov 25-27, 1980. Summaries of papers) edited by A.F Treshnikov, Leningrad, 1980, p.12-16, In Russian.
Sarukhanov, G.L.
River diversion, Lakes, Water resources, Flow control, Channels (waterways), Ice conditions, Runoff forecasting, Ice forecasting.

35-3107
Using numerical modeling method in forecasting and measuring changes in the water regime of the North Dvina and Pechora River estuaries due to partial diversion of flow. [Razrabotka prognoza izmenenii vodnogo rezhima ust'evykh uchastkov rek Sev. Dviny i Pechory pod vliianiem iz"iatiia chasti stoka na osnove metodov chislennogo modelirovaniia],
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River diversion, Flow control, Hydrology, Mathematical models, USSR—Dvina River, USSR—Pechora River.

35-3108
Determining allowable quantities of partial flow diversion from northern and Siberian rivers. [Metodicheskie osnovy opredeleniia dopustimykh velichin iz"iatiia stoka iz severnykh i sibirskikh rek],
Fashchevskii, B.V., Vsesoiuznoe soveshchanie Priroda Arktiki v usloviiakh mezhzonal'nogo pereraspredeleniia vodnykh resursov, Leningrad, Nov. 25-27, 1980. Tezisy dokladov (All-Union conference on Arctic environment under conditions of interzonal redistribution of water resources, Leningrad, Nov. 25-27, 1980. Summaries of papers) edited by A.F. Treshnikov, Leningrad, 1980, p.21-24, In Russian.
River diversion, Ecology, Environmental protection, Water pollution.

35-3109
Role of annual flow distribution in water conditions of the Pechora River estuary. [Rol' vnutrigodovogo raspredeleniia stoka na sostoianie vod ust'evogo vzmor'ia r. Pechory],
Minin, V.M., Vsesoiuznoe soveshchanie Priroda Arktiki v usloviiakh mezhzonal'nogo pereraspredeleniia vodnykh resursov, Leningrad, Nov 25-27, 1980. Tezisy dokladov (All-Union conference on Arctic environment under conditions of interzonal redistribution of water resources, Leningrad, Nov 25-27, 1980. Summaries of papers) edited by A.F Treshnikov, Leningrad, 1980, p.25-27, In Russian.
River diversion, Flow control, Hydrology, Seasonal variations.

35-3110
Evaluating water salinity variations in the Onega Bay during its separation from the White Sea waters. [Otsenochnyi prognoz izmeneniia solenosti vody v Onezhskom zalive pri otdelenii ego ot akvatorii Belogo moria],
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River diversion, Water transport, Salinity, Research projects, USSR—Onega Bay, USSR—Onega River.

35-3111
Evaluating variations in water exchange between bays and estuaries and open seas after partial flow diversion from northern river basins to the south slope. [O metode otsenki izmenenniia rezhimov vodoobmena gub i estuariev s otkrytymi moriami posle perebroski chasti stoka iz basseinov severnykh rek na iuzhnyi sklon],
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Estuaries, River diversion, Water transport, Water balance, Arctic Ocean.

35-3112
Evaluating possible changes in hydrological, meteorological, hydrochemical and ice conditions of the Pechora Sea after the first phase of partial flow diversion from the Pechora River. [Otsenka vozmozhnykh izmenenii ledovo-gidrologicheskogo, meteorologicheskogo i gidrokhimicheskogo rezhimov Pechorskogo moria v usloviiakh ot' ema chasti stoka reki Pechory pervoi ocheredi],
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River diversion, Ice conditions, Hydrology, Heat balance, USSR—Pechora River.

35-3113
Influence of partial flow diversion from the Pechora River on hydrochemical conditions of the Pechora Sea in summer. [Vliianie iz"iatiia chasti stoka r. Pechory na gidrokhimicheskie usloviia Pechorskogo moria v letnii period],
Perliuk, M.F., Vsesoiuznoe soveshchanie Priroda Arktiki v usloviiakh mezhzonal'nogo pereraspredeleniia vodnykh resursov, Leningrad, Nov. 25-27, 1980. Tezisy dokladov (All-Union conference on Arctic environment under conditions of interzonal redistribution of water resources, Leningrad, Nov. 25-27, 1980 Summaries of papers) edited by A.F. Treshnikov, Leningrad, 1980, p.41-44, In Russian.
River diversion, Sea water, Water chemistry, Arctic Ocean, USSR—Pechora River.

35-3114
Evaluating changes in hydrological regime of the Yenisey River due to human factors. [Otsenka izmeneniia gidrologicheskogo rezhima Eniseia v rezul'tate antropogennogo vozdeistviia],
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Human factors, Electric power, Lakes, Ecology, Hydrology, Ice conditions, USSR—Yenisey River, USSR—Kara Sea.

35-3115
Evaluating changes in flow dynamics of the Ob' River estuary waters due to river diversion. [Otsenka izmeneniia dinamiki potoka ust'evogo vzmor'ia r. Obi pod vliianiem iz"iatiia stoka],
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River diversion, Models, USSR—Ob' River.

35-3116
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Estuaries, Floods, Wave propagation, Water waves, USSR—Ob' River.

35-3117
Possible changes in thermal regime of the Ob' river estuary after flow diversion. [Vozmozhnye izmeneniia termicheskogo rezhima ust'evoi oblasti Obi v usloviiakh ot"ema stoka],
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IAnkina, V.A.
Estuaries, River diversion, Estuaries, Water temperature, Thermal regime, USSR—Ob' River.

35-3118
Forecasting thermal regime variations in the Ob' Bay in relation to the planned first phase of flow diversion. [Prognoz izmeneniia termicheskogo rezhima Obskoi guby v sviazi s planiruemym iz"iatiem stoka pervoi ocheredi],
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Vinnikov, S.D., Trushevskii, V.L.
Thermal regime, Ice conditions, River diversion, Water temperature, USSR—Ob' River, USSR—Ob' Bay.

35-3119
Possible changes in ice conditions and mechanical properties of ice in the estuary area of Ob' River due to partial flow diversion. [Vozmozhnye izmeneniia ledovogo rezhima i fiziko-mekhanicheskikh kharakteristik l'da v ust'evoĭ oblasti Obi pod vliianiem ot"ema chasti stoka].
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Nikolaev, S.E.
Estuaries, Ice conditions, Ice mechanics, Human factors, River diversion, USSR—Ob' River.

35-3120
Evaluating changes in hydrochemical regime of the Ob' River estuary after river diversion. [Otsenka izmeneniĭ gidrokhimicheskogo rezhima ust'evoĭ oblasti r. Obi v usloviiakh ot"iatiia chasti stoka].
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Estuaries, Water chemistry, Hydrology, River diversion, USSR—Ob' River.

35-3121
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Estuaries, River diversion, Ecology, Ecosystems, Subarctic landscapes, Sea water, Vegetation, Subglacial observations, USSR—Ob' River.

35-3122
Evaluating possible changes in the meteorological regime of the Ob' River estuary during interzonal redistribution of flow. [Otsenka vozmozhnykh izmeneniĭ meteorologicheskogo rezhima ust'evoĭ oblasti r. Obi v usloviiakh mezhzonal'nogo pereraspredeleniia stoka].
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Timerev, A.A., Subbotin, V.V.
Estuaries, Microclimatology, Climatic changes, River diversion, USSR—Ob' River.

35-3123
Variations in precipitation amounts in the lower courses of the Ob' and Yenisey rivers over a period of years. [Mnogoletnie kolebaniia osadkov v nizov'iakh Obi i Eniseia].
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Liubarskiĭ, A.N.
Precipitation (meteorology), Snow accumulation, Precipitation gages, Snowdrifts, Wind factors, USSR—Ob' River, USSR—Yenisey River.

35-3124
Meteorological regime and heat balance of different landscape types in the Ob' River area of the north during interzonal redistribution of flow. [Osobennosti meteorologicheskogo rezhima i teplovogo balansa razlichnykh tipov landshaftov v raĭone Obskogo Severa v usloviiakh mezhzonal'nogo pereraspredeleniia stoka].
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Petrushenko, V.D.
Landscape types, Heat balance, River diversion, USSR—Ob' River.

35-3125
Thermal balance of the active layer and its possible variations during interzonal redistribution of river flow. [Teplovoĭ balans deiatel'nogo sloia sushi i vozmozhnye ego izmeneniia pod vliianiem mezhzonal'nogo pereraspredeleniia stoka].
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Ushakova, T.V., Bolotnikova, E.G.
Active layer, Soil temperature, River diversion, Heat balance, Seasonal variations.

35-3126
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Suchkin, A.L.
Estuaries, Deltas, Geocryology, USSR—Ob' River.

35-3127
River diversion effect on shore stability of the Ob' Bay. [Narushenie ustoichivosti beregov Obskoĭ guby v sviazi s problemoĭ perebroski rechnogo stoka].
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Zhigarev, L.A., Sovershaev, V.A.
Shore erosion, Abrasion, Deltas, Shoreline modification, Subsea permafrost, Ground ice, USSR—Ob' River, USSR—Ob' Bay.

35-3128
Forecasting changes in permafrost conditions of northwestern Siberia due to decrease in Ob' River discharge. [Prognoz izmeneniia merzlotnykh uslovii severa Zapadnoĭ Sibiri v rezul'tate sokrashcheniia stoka r. Obi].
Shpolianskaia, N.A., Vsesoiuznoe soveshchanie Priroda Arktiki v usloviiakh mezhzonal'nogo pereraspredeleniia vodnykh resursov, Leningrad, Nov. 25-27, 1980. Tezisy dokladov (All-Union conference on Arctic environment under conditions of interzonal redistribution of water resources, Leningrad, Nov. 25-27, 1980. Summaries of papers) edited by A.F. Treshnikov, Leningrad, 1980, p.118-119, In Russian.
Permafrost thermal properties, River diversion, Frozen rock temperature, Frost penetration, Permafrost hydrology.

35-3129
Applying system analysis to modeling geomorphologic consequences of river diversion. [Sistemnoe geomorfologicheskoe modelirovanie posledstviĭ pereraspredeleniia vodnykh resursov].
Mikhankov, IU.M., et al, Vsesoiuznoe soveshchanie Priroda Arktiki v usloviiakh mezhzonal'nogo pereraspredeleniia vodnykh resursov, Leningrad, Nov. 25-27, 1980. Tezisy dokladov (All-Union conference on Arctic environment under conditions of interzonal redistribution of water resources, Leningrad, Nov 25-27, 1980. Summaries of papers) edited by A.F. Treshnikov, Leningrad, 1980, p 120-123, In Russian.
Sen'kin, O.V., Fedorov, B.G.
Deltas, Geomorphology, Geocryology, Human factors, River diversion, Mathematical models, USSR—Ob' River.

35-3130
Possible effects of human activities on the desalted layer of the Kara Sea. [Vozmozhnye posledstviia antropogennogo vozdeĭstviia na opresnennyĭ sloĭ Karskogo moria].
Nikiforov, E.G., et al, Vsesoiuznoe soveshchanie Priroda Arktiki v usloviiakh mezhzonal'nogo pereraspredeleniia vodnykh resursov, Leningrad, Nov 25-27, 1980. Tezisy dokladov (All-Union conference on Arctic environment under conditions of interzonal redistribution of water resources, Leningrad, Nov 25-27, 1980. Summaries of papers) edited by A.F. Treshnikov, Leningrad, 1980, p.124-126, In Russian.
Moretskiĭ, V.N.
Ice conditions, River diversion, Hydrology, Meteorology, USSR—Kara Sea.

35-3131
Evaluating variations in salinity of the surface layer of the Kara Sea due to river diversion and its effect on ice conditions. [Otsenka izmeneniĭ solenosti verkhnego sloia Karskogo moria pod vliianiem ot"emov rechnogo stoka i vozdeĭstvie etikh izmeneniĭ na ledovye usloviia].
Appel', I.L., et al, Vsesoiuznoe soveshchanie Priroda Arktiki v usloviiakh mezhzonal'nogo pereraspredeleniia vodnykh resursov, Leningrad, Nov. 25-27, 1980. Tezisy dokladov (All-Union conference on Arctic environment under conditions of interzonal redistribution of water resources, Leningrad, Nov 25-27, 1980. Summaries of papers) edited by A.F. Treshnikov, Leningrad, 1980, p.127-130, In Russian.
Gudkovich, Z.M., Frolov, I.E.
Ice conditions, River diversion, Sea water, Water transport, Water temperature, Salinity, Ice formation, USSR—Kara Sea.

35-3132
Moisture cycles in the lower course of the Ob' River and the Kara Sea and their possible variations due to interzonal redistribution of runoff. [Protsessy vlagooborota v nizov'iakh Obi i Karskom more i ikh vozmozhnye izmeneniia v usloviiakh mezhzonal'nogo pereraspredeleniia stoka].
Burova, L.P., Vsesoiuznoe soveshchanie Priroda Arktiki v usloviiakh mezhzonal'nogo pereraspredeleniia vodnykh resursov, Leningrad, Nov 25-27, 1980 Tezisy dokladov (All-Union conference on Arctic environment under conditions of interzonal redistribution of water resources, Leningrad, Nov 25-27, 1980 Summaries of papers) edited by A.F. Treshnikov, Leningrad, 1980, p.131-135, In Russian.
Moisture transfer, Periodic variations, Ice conditions, River diversion, USSR—Kara Sea, USSR—Ob' River.

35-3133
Oceanic eustacy, cyrolithozone dynamics during the period of 25,000 years and cryogenic forecasts for the Laptev Sea shelf. [Evstaziia okeana, dinamika kriolitozony za 25,000 let i merzlotnyĭ prognoz shel'fa moria Laptevykh].
Fartyshev, A.I., et al, Vsesoiuznoe soveshchanie Priroda Arktiki v usloviiakh mezhzonal'nogo pereraspredeleniia vodnykh resursov, Leningrad, Nov 25-27, 1980. Tezisy dokladov (All-Union conference on Arctic environment under conditions of interzonal redistribution of water resources, Leningrad, Nov 25-27, 1980. Summaries of papers) edited by A.F. Treshnikov, Leningrad, 1980, p.134-135, In Russian.
Antipina, Z.N.
Shores, Permafrost distribution, Subsea permafrost, Frozen rock temperature, Permafrost forecasting, USSR—Laptev Sea.

35-3134
Influence of human activities, including river diversions, on the environment and economic development of the estuary and lower course of the Ob' River. [Vliianie antropogennogo vozdeistviia, vkliuchaia ot"emy stoka, na okruzhaiushchuiu sredu i khoziaistvennoe ispol'zovanie nizov'ev i ust'evoĭ oblasti Obi], Greshnova, E.V., Vsesoiuznoe soveshchanie Priroda Arktiki v usloviiakh mezhzonal'nogo pereraspredeleniia vodnykh resursov, Leningrad, Nov. 25-27, 1980. Tezisy dokladov (All-Union conference on Arctic environment under conditions of interzonal redistribution of water resources, Leningrad, Nov. 25-27, 1980. Summaries of papers) edited by A.F. Treshnikov, Leningrad, 1980, p.136-137, In Russian.
Estuaries, Economic development, Transportation, Environmental protection, Tundra, Soil erosion, Permafrost control, USSR—Ob' River.

35-3135
Possible complications in providing navigable conditions in the Ob'-Irtysh Basin with partial divergence of these rivers' flow. [Vozmozhnye oslozhneniia v obespechenii putevykh uslovii v Ob'-Irtyshskom basseine pri chastichnom iz"iatii stoka etikh rek], Kovrigin, I.M., et al, Vsesoiuznoe soveshchanie Priroda Arktiki v usloviiakh mezhzonal'nogo pereraspredeleniia vodnykh resursov, Leningrad, Nov. 25-27, 1980. Tezisy dokladov (All-Union conference on Arctic environment under conditions of interzonal redistribution of water resources, Leningrad, Nov. 25-27, 1980. Summaries of papers) edited by A.F. Treshnikov, Leningrad, 1980, p.142-143, In Russian.
Strel'chenia, O.M.
River basins, Ice navigation.

35-3136
Oceanic mechanisms for amplification of the 23,000-year ice-volume cycle.
Ruddiman, W.F., et al, *Science*, May 8, 1981, 212(4495), p.617-627, Numerous refs.
McIntyre, A.
Ice sheets, Ice volume, Ocean environments, Climate control, Climatic changes, Air water interactions.

35-3137
Miocene stable isotope record: a detailed deep Pacific Ocean study and its paleoclimatic implications.
Woodruff, F., et al, *Science*, May 8, 1981, 212(4495), p.665-668, Numerous refs.
Savin, S.M., Douglas, R.G.
Isotope analysis, Sea water, Chemical composition, Temperature variations, Ice sheets.
Deep Sea Drilling Project site 289 in the western equatorial Pacific has yielded an extremely detailed record of the carbon and oxygen isotopic changes in the Miocene deep ocean. The isotopic record reflects major changes in paleoclimate and paleoceanography, probably dominated by a major phase of Antarctic ice-cap growth. The transition from a relatively unglaciated world to one similar to today occurred between 16.5 million and 13 million years before the present, with the greatest change occurring between approximately 14.8 million and 14.0 million years before the present. (Auth.)

35-3138
Sakami moraine, Quebec: a 500-km-long moraine without climate control.
Hillaire-Marcel, C., et al, *Geology*, May 1981, 9(5), p.210-214, 25 refs.
Occhietti, S., Vincent, J.-S.
Ice sheets, Moraines, Climate control, Dynamic properties.

35-3139
Sand dunes of Victoria Valley, Antarctica.
Calkin, P.E., et al, *Geographical review*, Apr. 1974, 64(2), p.189-216, Numerous refs.
Rutford, R.H.
Deserts, Snow accumulation, Climate, Wind velocity, Sands, Sediment transport.
A combination of strong and steady easterly winds in summer, an arid climate, and an abundant supply of sand have contributed to the formation of a desert erg in lower Victoria Valley. In the erg are sand sheets, whaleback mantles, and a belt of barchan dunes without equal anywhere in Antarctica. Sand from the surface and margin of Victoria Lower Glacier and from ground moraine and outwash beyond is moved westward, partly by stream but largely by wind, to take on the various forms, all of which differ from the usual temperate desert and coastal formations by the inclusion of compacted snow strata and ice-cemented sections. This paper describes the dunes and their setting and considers their movement and sedimentary characteristics. (Auth.)

35-3140
Planning status report; water resources appraisals for hydroelectric licensing; Alaska river basins, Alaska.
U.S. Federal Energy Regulatory Commission. Report, Jan. 1981, FERC-0068, 32p. + map, Originally issued 1967, revised Jan. 1981.
River basins, Water reserves, Electric power, Research projects, United States—Alaska.

35-3141
Acoustic emissions from unstable snow slopes.
Sommerfeld, R.A., Conference on Acoustic Emission/Microseismic Activity on Geologic Structures and Materials, 2nd, University Park, Pa., Nov. 13-15, 1978 Proceedings. Edited by H.R. Hardy, Jr., and F.W. Leighton, University Park, Pennsylvania State University, 1980, p.319-329, 6 refs.
Snow acoustics, Noise (sound), Avalanche formation, Avalanche forecasting.

35-3142
Proceedings of the 37th annual meeting, June 5 and 6, 1980.
Eastern Snow Conference, Peterborough, Ontario, Canada, 1980, 224p., Refs. passim. For individual papers see 35-3143 through 35-3163.
Snow surveys, Solar radiation, Ice surveys, Measuring instruments, Snow samplers, Meetings.

35-3143
Illustrations of biological roles of winter lake cover.
Adams, W.P., Eastern Snow Conference, 37th. Proceedings, Peterborough, Ontario, Canada, 1980, p.1-18, 31 refs.
Snow cover effect, Ice cover effect, Lake ice, Ecosystems, Heat balance, Light transmission, Oxygen, Water chemistry.

35-3144
Evaluation of the spatial and temporal distributions of snowpack parameters in the Saint John River basin.
Trivett, N.B.A., et al, Eastern Snow Conference, 37th Proceedings, Peterborough, Ontario, Canada, 1980, p.19-35, 9 refs.
Waterman, S.E.
Snow cover distribution, Snow depth, Snow water equivalent, Vegetation factors, Mapping, Computer applications.

35-3145
Distributions of extreme snowfall in West Virginia.
Chang, M., et al, Eastern Snow Conference, 37th. Proceedings, Peterborough, Ontario, Canada, 1980, p.36-44, 10 refs.
Boyer, D.G.
Snowfall, Snow cover distribution, Analysis (mathematics).

35-3146
Seasonal streamflow estimation using snow data.
Eschner, A.R., Eastern Snow Conference, 37th Proceedings, Peterborough, Ontario, Canada, 1980, p.45-53, 8 refs.
Stream flow, Runoff, Snow melting, Snow hydrology, Seasonal variations, Watersheds.

35-3147
Snow accumulation on and around solar collectors.
Harris, J.R., Eastern Snow Conference, 37th. Proceedings, Peterborough, Ontario, Canada, 1980, p.54-65, 4 refs.
Snow accumulation, Ice accretion, Snowdrifts, Equipment, Roofs, Buildings, Snow slides, Slope orientation.

35-3148
Snow sampling bias in the boreal forest.
Granberg, H.B., Eastern Snow Conference, 37th. Proceedings, Peterborough, Ontario, Canada, 1980, p.66-75, 13 refs.
Snow samplers, Snow water equivalent, Snow depth, Forest land.

35-3149
Incident flux and snow cover albedo for partially cloudy skies.
Choudhury, B.J., et al, Eastern Snow Conference, 37th. Proceedings, Peterborough, Ontario, Canada, 1980, p.76-90, 43 refs.
Chang, A.T.C.
Snow optics, Albedo, Clouds (meteorology), Solar radiation, Snow thermal properties, Radiation balance.
The albedo of snow for different cloudiness conditions is an important parameter in the Earth's radiation budget analysis and in the study of snowpack thermal conditions. An efficient method is presented for approximate calculation of incident spectral solar flux and snowcover albedo in terms of atmospheric, cloud, and snow parameters. The model is illustrated using representative parameters for the Antarctic coastal regions. The albedo for a clear sky depends inversely on the solar elevation. At high elevations the albedo depends primarily upon the grain size; at low elevations this dependence is on grain size and shape. The gradient of the albedo-elevation curve increases as the grains get larger and faceted. The albedo for a dense overcast is slightly higher than the clear sky albedo at high elevations. A simple relation between the grain size and the overcast albedo is obtained. For a set of grain size and shape, the albedo matrices (the albedo as a function of solar elevation and fractional cloud cover) are tabulated. (Auth.)

35-3150
Duchesnay Experimentation Station: report on its operation during the 1978-79 winter. [Station expérimentale de Duchesnay rapport de fonctionnement pour l'hiver 1978-79],
Fréchette, A., Eastern Snow Conference, 37th Proceedings, Peterborough, Ontario, Canada, 1980, p.91-100, In French with English summary.
Snow surveys, Snow water equivalent, Snow accumulation, Snow cover.

35-3151
Operating the Androscoggin river/reservoir system.
Grove, W.M., Eastern Snow Conference, 37th Proceedings, Peterborough, Ontario, Canada, 1980, p.101-105.
Snow cover effect, River flow, Reservoirs, Precipitation (meteorology), Flood control, Rain.

35-3152
Wind tunnel modeling of snow fences and natural snow fence controls.
Iversen, J.D., Eastern Snow Conference, 37th. Proceedings, Peterborough, Ontario, Canada, 1980, p.106-124, 34 refs.
Wind tunnels, Snow fences, Snowdrifts, Models, Experimentation.

35-3153
Lake Champlain ice formation and ice free dates and predictions from meteorological indicators.
Bates, R.E., MP 1429, Eastern Snow Conference, 37th. Proceedings, Peterborough, Ontario, Canada, 1980, p.125-143, 10 refs. For another version of this paper see 34-1745.
Lake ice, Ice formation, Ice growth, Freezeup, Ice breakup, Weather forecasting, Ice forecasting, Water temperature, Wind velocity, LANDSAT, Navigation.
A 19-year record of annual closing and opening dates of the Lake Champlain ferry season was found to accurately approximate the freeze-over and breakup dates for the ferry crossing area between Gordon Landing, Vermont, and Cumberland Head, N.Y. These lake navigation records, when compared statistically with the lake's wintertime thermal structure and climatological data for the same years of at nearby Lake Champlain locations, allowed accurate predictions of ice formation. From nearby air temperature records, cumulative freezing degree-day (C) curves were plotted for each year of record and ice formation dates and standard deviations were predicted with considerable accuracy. Several methods of predicting ice formation on Lake Champlain were attempted. The most accurate approach used a combination of water temperatures and freezing degree-days. A method of predicting ice growth rates is shown and the influence of wind speed on ice cover formation and prediction on a large body of water such as this is also discussed.

35-3154
Modelling of shortwave radiation for snow covered terrain.
Waterman, S.E., Eastern Snow Conference, 37th. Proceedings, Peterborough, Ontario, Canada, 1980, p.144-158, 21 refs.
Solar radiation, Snow cover effect, Snow optics, Spectra, Snow surface, Backscattering, Radiation absorption, Models.

35-3155
Net shortwave radiation model for glacierized basins.
Munro, D.S., et al, Eastern Snow Conference, 37th. Proceedings, Peterborough, Ontario, Canada, 1980, p.159-169, 16 refs.
Young, G.J.
Solar radiation, Glacier ice, Reflection, Ice optics, Spectra, Slope orientation, Altitude, Models.

35-3156
Role of the lake winter cover in the phosphorous budget of a southern Ontario lake.
Wolfe, B.R., Eastern Snow Conference, 37th. Proceedings, Peterborough, Ontario, Canada, 1980, p.170-178, 15 refs.
Lake water, Water chemistry, Snow composition, Lake ice, Ice composition, Eolian soils, Nutrient cycle.

35-3157
Heat sink capacity of a snow dump site.
Feick, J.R., et al, Eastern Snow Conference, 37th Proceedings, Peterborough, Ontario, Canada, 1980, p.179-181.
Goulet, R.
Snow thermal properties, Heat sinks, Snow melting, Refrigeration, Air conditioning, Cost analysis.

35-3158
Influence of snow on the input and movement of cations within a small watershed: methods and preliminary resutls.
Pierson, D.C. et al, Eastern Snow Conference, 37th. Proceedings, Peterborough, Ontario, Canada, 1980, p.182-184, 6 refs.
Taylor, C.H.
Snow cover effect, Snowmelt, Water chemistry, Ion density (concentration), Watersheds, Nutrient cycle.

35-3159
Use of a computer mapping package in displaying areal representations of a snowcover.
Roulet, N.T., Eastern Snow Conference, 37th. Proceedings, Peterborough, Ontario, Canada, 1980, p.185-188, 6 refs.
Snow cover distribution, Snow depth, Mapping, Landscape types, Computer applications, Vegetation factors.

35-3160
Observations on the use of a mechanical device for measuring the thickness of lake ice.
Adams, W.P., et al, Eastern Snow Conference, 37th. Proceedings, Peterborough, Ontario, Canada, 1980, p.189-192, 11 refs
Prowse, T.D.
Lake ice, Ice cover thickness, Measuring instruments, Drilling, Slush, Ice growth.

35-3161
Freeze-out of nutrients from lake ice.
Jones, R., et al, Eastern Snow Conference, 37th. Proceedings, Peterborough, Ontario, Canada, 1980, p.193-195, 6 refs.
Orr, D.B.
Lake ice, Lake water, Water chemistry, Biomass, Ice formation, Time factor, Distribution, Nutrients.

35-3162
AES Nipher shields for recording precipitation gauges: an assessment.
Goodison, B.E., et al, Eastern Snow Conference, 37th. Proceedings, Peterborough, Ontario, Canada, 1980, p.196-198, 4 refs.
Metcalfe, J.R
Precipitation gages, Snowfall, Snow water equivalent, Measuring instruments.

35-3163
New 2 and 3 inch diameter CRREL snow samplers.
Bates, R.E., et al, MP 1430, Eastern Snow Conference, 37th. Proceedings, Peterborough, Ontario, Canada, 1980, p.199-200, 1 ref. Extended abstract.
Rand, J.H., Redfield, R.
Snow samplers, Roofs, Snow loads, Snow water equivalent, Ice lenses.

35-3164
Geographic names of the Antarctic.
Alberts, F.G., ed, Washington, D.C., National Science Foundation, 1981, 959p. GPO Stock No. SN 038-000-00471-5.
Gazetteers, Antarctica.
This volume describes and locates (using geographic coordinates) the approx 12,000 place names in and near Antarctica that are officially recognized for use by the United States Government and recommended for use by others. Approx. 3,000 variant spellings and misapplied names are entered and referred to recognized names. In a foreword, the need for standardized antarctic place names is reemphasized. The policy of the U.S. Board on Geographic Names is set forth, some of the problems needing solution in the interests of standardization (similarity of antarctic topographic features, navigational inaccuracies, e.g.) are cited, various maps and mapping techniques, both U.S. and foreign, are discussed, map availability is noted, and a list of non-U.S. gazetteers is included. A section on abbreviations covers names, entities, compass directions, military forces, and historic and more recent antarctic expeditions.

35-3165
Dome C geophysical survey, 1979-80.
Shabtaie, S., et al, *Antarctic journal of the United States*, 1980, 15(5), p.2-5, 10 refs.
Bentley, C.R., Blankenship, D.D., Lovell, J.S., Gassett, R.M.
Ice cover thickness, Geodetic surveys, Seismic prospecting, Antarctica—Dome C.
Geophysical measurements at Dome C between Nov. 1979 and Jan. 1980 included radar sounding, seismic shooting, geoelectric sounding, gravity and magnetic surveying, and magnetotelluric recording. In addition, a joint geoelectric survey and radar-sounding program was carried out with a geophysical team from the University of Münster, West Germany. Detailed ice-thickness measurements carried out around the borehole site showed a very rough bedrock topography. At several sites the radar profiling indicated the possible presence of subglacial water channels. Further examination of a highly resistive basal ice layer on the Ross Ice Shelf was a major objective of the joint project with the University of Münster. Preliminary analysis of gravity and magnetic data at Dome C indicates that any sedimentary layer below the ice is, at most, no more than a few tens of meters thick. Seismic experiments included a wide-angle reflection profile, a compressional wave refraction profile, two large-separation refraction shots, and extensive surface-wave recording. The efficacy of the magnetotelluric method on ice sheets has been confirmed.

35-3166
Seismic refraction studies in western McMurdo Sound.
McGinnis, L.D., *Antarctic journal of the United States*, 1980, 15(5), p.11
Sea ice, Subsea permafrost, Seismic refraction, Antarctica—McMurdo Sound.
A seismic refraction study was carried out from the sea ice in McMurdo Sound from Nov. 15 to Dec. 9, 1979. Preliminary results indicate the following. 1) a basement of high relief and dip; 2) high velocity sea floor through much of the sound, probably caused by submarine permafrost, and 3) basement velocities ranging from 5.1 to 7.1 km/sec

35-3167
Earth sciences research in the McMurdo Sound region, 1979-1980.
Nagata, T., *Antarctic journal of the United States*, 1980, 15(5), p.12.
Icequakes, Ice sheets, Glaciology, Lake ice, Antarctica—McMurdo Sound.
Japanese and U.S. scientists conducted cooperative research in the Ellsworth Mountains and McMurdo Sound region on the following programs: seismological observations at the summit of Mt. Erebus, icequake observations and sampling of ice cores at Lake Vanda, glaciological survey at Allan Hills bare ice field, and geological survey of the Ellsworth Mountains. The mean number of earthquakes related to volcanism observed at Mt. Erebus was 20 per day. Glaciological studies at Allan Hills showed the maximum horizontal movement and ablation of the ice surface to be 2.6 m/yr and 7 cm/yr, respectively. Ice and rock samples were collected from respective survey areas for further study.

35-3168
Microclimate and weathering processes in the area of Darwin Mountains and Bull Pass, Dry Valleys.
Miotke, F.-D., *Antarctic journal of the United States*, 1980, 15(5), p.14-16, 3 refs.
Weathering, Soil temperature, Soil water, Snow temperature, Antarctica—Darwin Mountains.
During Dec. 1978 and Jan. 1979, microclimate, antarctic landforms, and weathering processes, i.e., temperature-caused tension, frost cracking, and salt fretting, were studied in the area of Darwin Mountains and Bull Pass, Dry Valleys. Daily temperatures were recorded by thermistors in various rocks, soils, and snow. Moisture in soils is normally very low at the upper surface, mostly below 0.1%, but can be as high as 20% where meltwater infiltrates during summer. Daily heat flow in rocks reaches deeper than in soils. X-ray analysis of salt samples from the Darwin Mountains mainly showed calcite, gypsum, thenardite, and mirabilite, while those from Bull Pass showed halite, calcite, gypsum, and thenardite. The effects of water and wind activity on slope formation and creep are discussed.

35-3169
Fission track ages of Marie Byrd Land volcanic rocks.
Seward, D., et al, *Antarctic journal of the United States*, 1980, 15(5), p.19, 3 refs.
Kyle, P.R., LeMasurier, W.E.
Ice cores, Ice composition, Antarctica—Marie Byrd Land.
When tephra layers from Byrd ice cores failed to show sufficient concentrations of volcanic glass shards to obtain a meaningful age date, three samples of obsidian from Marie Byrd Land volcanoes were examined to develop techniques for etching and dating material similar to that in ice cores. Fission track dates for the samples are tabulated, along with conventional K/Ar ages. It is demonstrated that volcanic glass from Marie Byrd Land volcanoes can be dated easily by the fission track method, because of their high uranium content. The method offers considerable potential for examining the younger volcanoes, such as Mt. Takahe. Since annealing occurred in two of the samples, it is imperative that samples be checked for annealing and appropriate corrections bemade. Fission track dating appears to offer a valuable means for dating glass shards from tephra layers in deep ice cores from West Antarctica.

35-3170
Soil development and rock weathering in the Ellsworth Mountains, Antarctica.
Bockheim, J.G., et al, *Antarctic journal of the United States*, 1980, 15(5), p.33-34, 8 refs.
Leide, J.E.
Soil profiles, Weathering, Alpine landscapes, Antarctica—Ellsworth Mountains.
Soils on moraines are described and the condition of surface boulders on moraines is identified for 22 sites in the Heritage and Sentinel Ranges. Poorly developed soils occur on moraines in the Heritage Range below 2,100 m and in the Sentinel Range below 3,000 m. Soils and surface boulder weathering features in the Heritage and Sentinel Ranges are comparable to those on Ross Sea drift in eastern Taylor Valley, Trilogy drift in eastern Wright Valley, and Britannia drift in the Darwin and Byrd Glacier areas. These data in conjunction with the findings of others, suggest that most of the peaks in the Heritage Range were overrun by ice from the expanded West Antarctic ice sheet during the last glaciation (about 18,000 y.a.). X-ray diffraction analysis of salt encrustations revealed the widespread occurrence of gypsum in the Heritage Range. Soda niter was discovered on Dickey Peak in the Sentinel Range.

35-3171
Antarctic search for meteorites, 1979-80.
Cassidy, W.A., *Antarctic journal of the United States*, 1980, 15(5), p.49-50, 3 refs.
Ice sheets, Ice surface.
During the 1979-80 field season 14 meteorites were collected from a large patch of bare ice extending westward from Reckling Peak. The collection included one iron generally considered relatively rare. The ice patch has been surveyed at two points 50 km apart, and meteorites have been found at both sites. Surface features of the area are briefly discussed. At Allan Hills, 53 meteorites were collected, ice vector measurements were made and ice samples were collected for chemical determinations. No meteorites were found in the Ellsworth Mountains.

35-3172
Glacial history of the Ellsworth Mountains.
Rutford, R.H., et al, *Antarctic journal of the United States*, 1980, 15(5), p.56-57, 5 refs.
Denton, G.H., Andersen, B.G.
Glacial geology, Ice sheets, Antarctica—Ellsworth Mountains.
The primary objective of this study is to relate the local glacial history to overall fluctuations of the West Antarctic ice sheet, particularly during late Wisconsin and Holocene times. Evidence from the Ellsworth Mountains suggests that in late Wisconsin time a thicker-than-present West Antarctic ice sheet poured seaward around and through the Ellsworth Mountains, while at least one interior dome attained a high-than-present elevation. Glaciological reconstructions adjusted to fit elevations of the last Wisconsin ice sheet surface near the Ellsworth Mountains suggest that grounded ice occupied much of the present area of the Ronne Ice Shelf and southern Weddell Sea.

35-3173
Glacial marine sedimentation in the Ross Sea, DSDP sites 270-273.
Biddle, K.B., *Antarctic journal of the United States*, 1980, 15(5), p.57-59, 3 refs.
Glacial deposits, Glacial geology, Antarctica—Ross Sea.
This research involves a stratigraphic study of Oligocene through Pliocene glacial marine sections in the eastern and western Ross Sea. It also provides an opportunity to compare Ross Sea piston core data with the stratigraphic sections. The study entails initial textural and mineralogic identification of basal tills vs glacial marine sediments in piston cores from this region to distinguish grounded from floating ice deposits. The focus then shifts to identifying these deposits in the thick glacial marine sections recovered at DSDP sites 270-273 in the Ross Sea.

35-3174
Interpretation of Rb-Sr dates of feldspar in tillite on Mt. Tuatara, Byrd Glacier.
Faure, G., et al, *Antarctic journal of the United States*, 1980, 15(5), p.59-60, 7 refs.
Taylor, K.S.
Glacial deposits, Glacial geology, Antarctica—Byrd Glacier.
Grainsize fractions of feldspar extracted from the tillites on Mt. Tuatara were dated in an effort to determine the origin of the tillite on this mountain and elsewhere in the Transantarctic Mountains. The results yield a date of 1,086 m.y. The evidence indicates that the tillite on Mt. Tuatara was deposited by an ancestral outlet glacier that drained the East Antarctic ice sheet. The location of these deposits above the present level of the Byrd Glacier may indicate that this ancestral glacier was several hundred meters thicker than the Byrd Glacier, or that Mt. Tuatara has been uplifted since deposition of the tillites, or both.

35-3175
Apparent surface lowering on Byrd Glacier between 1960 and 1978.
Brecher, H.H., *Antarctic journal of the United States*, 1980, 15(5), p.64-65, 3 refs.
Glacier mass balance, Glacier oscillation, Antarctica—Byrd Glacier.
Approximately 40 Byrd Glacier surface spot elevations determined by trigonometric leveling from fixed stations on rock during the 1978-79 field season have been found to be much lower than the glacier surface elevations depicted on topographic maps compiled from aerial photographs taken during the period 1960-62 (U.S. Geological Survey 1966). The apparent lowering varies from about 50 m at the extremes to over 150 m at the center of a 60-km section for which data are available. The most pronounced exception is Mt. Rummage at the northwest corner of Byrd Glacier, for which the map elevation appears to be 100 m too high. If confirmed, these findings could have considerable implications for studies of the mass balance of the east antarctic ice sheet.

35-3176
Glaciological studies in Allan Hills, 1979-80.
Annexstad, J.O., et al, *Antarctic journal of the United States*, 1980, 15(5), p.65-66, 4 refs.
Nishio, F.
Ice sheets, Glacier ablation, Geodetic surveys, Antarctica—Allan Hills.
A triangulation chain was established on the Allan Hills icefield during the 1978-79 season in an attempt to understand the mechanism of meteorite concentration. Preliminary data from a resurvey of the network in Dec. 1979 are presented. A table

lists the stations with elevations, ablation rates, and vertical and horizontal motions for each.

35-3177
Radioactive dating and the compositions of the gas in Antarctic ice.
Fireman, E.L., *Antarctic journal of the United States,* 1980, 15(5), p.67-68, 9 refs.
Ice composition, Gas inclusions, Geochronology, Antarctica—Allan Hills.
Measurements were taken of the carbon-14, radon-222, and the volumes and compositions (nitrogen, oxygen, argon, and carbon dioxide) of gas trapped in ice samples from the Byrd core and from the Allan Hills meteorite collection site. The measurements give ages for the ice samples and relate to the ecological history of the regions and the history of the Earth's atmosphere. The results are summarized in a table. An interesting result of the Rn-222 (radon) measurements is the indication that measurable amounts of long-lived parents of Ra-226 (radium), mainly Th-230 (thorium), were in the ancient snow that fell near Byrd Station. The alpha activities in the Byrd and Allan Hills samples will be measured to determine the Th-230 and other long-lived parents directly.

35-3178
Characteristics and significance of rock glaciers in southern Victoria Land, Antarctica.
Mayewski, P.A., et al, *Antarctic journal of the United States,* 1980, 15(5), p.68-69.
Hassinger, J.
Rock glaciers, Ice cores, Antarctica—Victoria Land.
Rock glaciers, considered useful as monitors of climatic change, were studied this season in Wright, Taylor, and Victoria Valleys, and at Bull Pass. Monitoring experiments were set up on nine glaciers to investigate velocity, strain, viscosity, response time, and intraformational components. Additional studies included collection of a 12.5-m-deep ice core from the accumulation zone of Meserve Glacier for analysis of chemical species, and testing of a radio-echo sounder on Meserve and Taylor Glaciers.

35-3179
Deep geoelectric and electromagnetic soundings at Dome C.
Thyssen, F., et al, *Antarctic journal of the United States,* 1980, 15(5), p.69-71, 3 refs.
Shabtaie, S.
Ice sheets, Ice electrical properties, Sounding, Antarctica—Dome C.
Deep geoelectric and radio-echo sounding of the polar ice at Dome C is described. Using a Schlumberger array technique, two detailed direct current electrical resistivity profiles with electrode half-spacings of 1 m to a max of 6 and 8 km, respectively, yielded well-determined apparent resistivity curves. Seven to nine points per decade on a logarithmic scale were measured. The equipment used is described. A sample recording of the potentials at a half-spacing of 4 km, with positive, zero and negative current, is shown. The influence of the telluric field is clearly seen. The results from Dome C support the concept that highly resistive layers are commonly found deep within polar ice masses. The cause remains an open question. A monopulse echo sounder with a digital recording system was tested. The results are discussed.

35-3180
Glaciological interpretation of the microparticle concentration in the 905-meter Dome C core.
Mosley-Thompson, E., et al, *Antarctic journal of the United States,* 1980, 15(5), p.71-75, 7 refs.
Thompson, L.G.
Ice cores, Drill core analysis, Impurities, Antarctica—Dome C.
Some 5,367 samples representing 51 sections of the recently drilled 905-m core at Dome C were analyzed for microparticle concentration and size distribution. The average sample size of 0.0067-m ice coupled with the annual accumulation of 0.035-m ice yields a resolution of 5.5 samples per accumulation year. Figure 1 presents the average concentration of particles with diameters >0.63 micrometer per 500 microliter sample for each of the 51 sections along with the corresponding oxygen-18 measurements. Particle concentration reaches a peak just prior to the end of the last glacial. Figures 2 and 3 present the concentrations of small particles with diameters between 0.63 and 0.80 micrometers for five sections from the postglacial strata and five sections from the glacial strata of the Dome C ice core. The data are discussed.

35-3181
Shallow-depth temperature models for Dome C.
Ewing, R.E., *Antarctic journal of the United States,* 1980, 15(5), p.75-76, 4 refs.
Ice sheets, Ice temperature, Mathematical models, Firn, Antarctica—Dome C.
Data taken at Dome C during the 1978-79 and 1979-80 field seasons is being used both to help determine thermal properties of the firn necessary for building accurate shallow-depth numerical temperature models and also to test the resulting equations. Such models can be used to make reverse calculations from measured temperature profiles from Dome C to a depth of about 100 m to derive past, decade-scale, climatic, and surface temperature changes. This research has centered on accurately determining values of thermal conductivity and specific heat at Dome C and interpreting mathematically measured temperature anomalies using a shallow-depth temperature model developed for use at Dome C in 1978-79, modified, and used again in 1979-80.

35-3182
French field activities at Dome C.
Lorius, C., *Antarctic journal of the United States,* 1980, 15(5), p.76, 3 refs.
Snow composition, Antarctica—Dome C.
A shallow snow sampling program was undertaken at Dome C during the 1979-80 season for full analysis of the main anions and cations and for measurements of artificial radioactivity, lead-210, microparticles, and stable isotopes. In the field a stake accumulation network was remeasured, a radiation probe was tested, conductivity measurements were performed to investigate volcanic dust, and samples were melted to recover cesium-137.

35-3183
Polar Ice Coring Office (PICO) drilling activities, 1979-80.
Kuivinen, K.C., et al, *Antarctic journal of the United States,* 1980, 15(5), p.76-77, 3 refs.
Marshall, P.S., Koci, B.R.
Drilling, Ice coring drills, Ice cores, Antarctica—Amundsen-Scott Station, Antarctica—Vostok Station.
The Polar Ice Coring Office (PICO) continued its program of shallow ice coring at Amundsen-Scott and Vostok Stations and completed a program of hot water drilling at Dome C during the 1979-80 field season. Included in the field work were tests of the new PICO shallow ice coring drill and the PICO hot water drill, recovery of the NSF-Swiss shallow drill stuck at 65 m depth at Dome C during the USARP 1978-79 field season, and recovery of data tapes and reactivation of the Norwegian and Soviet freeze-in experiments from the Ross Ice Shelf Project (RISP) drill camp J-9.

35-3184
Search for cometary dust in the antarctic ice.
King, E.A., et al, *Antarctic journal of the United States,* 1980, 15(5), p.78-79.
Wagstaff, J.
Ice cores, Cosmic dust, Particles.
In an attempt to find and identify cometary dust in particles from ice cores taken at the South Pole and on the Ross Ice Shelf, a systematic survey was made of a series of core samples across the interval 1830 to 1838. It is believed that the Cosequina, Nicaragua, ash fall of 1835 has been identified, and thus the immediately underlying layer that should contain the Leonid meteor particles from the great shower of 1833.

35-3185
Nitrogenous chemical composition of antarctic ice and snow.
Parker, B.C., et al, *Antarctic journal of the United States,* 1980, 15(5), p.79-81, 11 refs.
Zeller, E.J.
Ice composition, Snow composition, Firn, Chemical analysis.
The objectives of this study include an understanding of 1) the nitrogenous chemical contents of snow and ice of different ages and from different geographic locations, 2) their concentration ranges and periodic and nonperiodic fluctuations, and 3) their sources and the mechanisms that cause these fluctuations. This report summarizes earlier data and addresses the question of major mechanisms for NO_3^- production in antarctic snow and firn. Data from a computer plot of nitrate (as micrograms of nitrogen per square decimeter per year) from 1979-80 snow-pit samples and annual sunspot numbers appear to support the theory of solar-activity-induced fixation by auroras as the major source of NO_3^-. The data cannot be accepted as a valid generalization until they are repeated extensively at several locations.

35-3186
Atmospheric trace gases in association with sea ice.
Gosink, T.A., *Antarctic journal of the United States,* 1980, 15(5), p.82-83, 5 refs.
Sea ice distribution, Ice composition, Atmospheric composition, Gases.
Sea ice conditions in the vicinity of McMurdo during Nov. 1979 are briefly described and compared with similar observations in northern Alaska. All of the trace gas concentrations and ratios measured in the air and at the ice-air interface were different from what has been observed in the Arctic. Differences were also evident between the arctic and antarctic trace gases in sea ice and water. Analytical results for concentrations of carbon monoxide (CO), methane (CH_4), carbon dioxide (CO_2), and nitrous oxide (N_2O) in the air, snow, sea ice, and seawater near McMurdo are presented and discussed.

35-3187
Observation of the antarctic east wind drift current by using tabular icebergs tracked by satellite.
Tchernia, P., *Antarctic journal of the United States,* 1980, 15(5), p.83, 3 refs.
Icebergs, Drift, Ocean currents.
Previous observations show that near the Kerguelen Plateau, the westward flowing East Wind Drift current presents a U-turn establishing, between 62 and 64S, a connection between the two parallel and converse drift currents. The purpose of the present investigation is to determine whether there are other such interconnections in the area not yet explored with this technique (140E to 80W), particularly off the Ross Sea. On Jan. 21, 1980, two French radio beacons (1068 and 1069) were set up on two icebergs drifting near 75 deg 30 min S, 162 deg W and positioned by TIROS N-ARGOS. For unknown reasons 1069 discontinued working after 8 days. On Sep. 15, 1069 was 450 naut. mi. from its starting position. Information on its track will be given later.

35-3188
Sea ice studies in the Weddell Sea aboard USCGC Polar Sea.
Ackley, S.F., et al, *Antarctic journal of the United States,* 1980, 15(5), MP 1431, p.84-96, 7 refs.
Gow, A.J., Buck, K.R., Golden, K.M.
Sea ice, Drift, Primary productivity, Weddell Sea.
The purpose of this study was to investigate several characteristics of Weddell Sea pack ice that may affect the relative roles of dynamics and thermodynamics of pack ice development in this region. The physical and structural properties of the pack ice were surveyed using core samples. Significant amounts of frazil ice were found. If this formation of frazil ice is as widespread as suspected, then the role of deformation (the opening and closing of leads and polynyas) may have a greater role in the formation of Weddell Sea pack ice than similar processes do in the arctic pack. Four data buoys were deployed. The initial locations are shown, and the studies for which the buoy data will be used are discussed. Observations during the cruise confirmed the ubiquitous presence of algae in nearly all forms of ice sampled and point close links between pack ice formation and enhanced algal production.

35-3189
Interdisciplinary investigations in antarctic oceanography.
Jacobs, S.S., *Antarctic journal of the United States,* 1980, 15(5), p.87-89, 8 refs.
Glacier melting, Ocean currents.
Interdisciplinary research in antarctic oceanography is described. Investigators working aboard USCG *Northwind* observed seabird concentrations near the Ross Sea pack ice and over the subsurface Antarctic Slope Front. Vertical profiles of temperature, salinity, and density made from USCGC *Glacier* stations revealed well developed steps that were attributed to melting at the underside of the Erebus Glacier Tongue. A *Glacier* temperature section taken along the George V Coast shows potential antarctic bottom water formation and circumpolar deep water movement onto the continental shelf. A collaborative study of silicate in the deep oceans supports the concept of a predominantly lateral ocean circulation, with an advective deep silica maximum.

35-3190
Circumpolar water masses.
Gordon, A.L., *Antarctic journal of the United States,* 1980, 15(5), p.89-90.
Ocean currents, Ice melting.
The water mass structure of the Weddell (subpolar) gyre is discussed, and a schematic representation of South Atlantic circulation which would produce the observed water mass distribution is shown. The warm-saline signal, although weak throughout the Weddell gyre, is most evident in a zonal band running from Maud Rise (67S) eastward to 30E. The role of convective processes in the Weddell gyre is discussed.

35-3191
USCGC *Glacier* Deep Freeze 80.
Anderson, J.B., et al, *Antarctic journal of the United States,* 1980, 15(5), p.58-75.
Kurtz, D.D.
Icebergs, Glacier tongues, Sediments.
The objectives of this program were: 1) to occupy geologic stations along the Pennell Coast, in Terra Nova Bay, and in McMurdo Sound; 2) to conduct a reconnaissance study of other portions of the western Ross Sea, 3) to conduct bathymetric surveys in uncharted waters; 4) to sample ice-rafted detritus from icebergs and floating ice, and 5) to chart the current positions of ice tongues and glacier termini using the ship's radar. During the cruise, a series of seamounts and a possible southern extension of the Balleny Fracture Zone from the Balleny Is. to Cape Adare were discovered. Preliminary results of the observations are described.

35-3192
Late Quaternary geology of the George V and Adélie continental shelf, East Antarctica.
Domack, E.W., *Antarctic journal of the United States,* 1980, 15(5), p.127-128, 5 refs.
Glacial geology, Ice sheets, Glacier flow, Glacial deposits, Antarctica—George V Coast, Antarctica—Adélie Coast.
Detailed investigation was made of massive and stratified diamictons, laminated siliceous oozes, and well sorted, graded sands obtained from the George V/Adélie continental shelf in order to reconstruct the glacial marine geology of the area. The evidence indicates the following conditions: 1) Grounded ice extended to the shelf break within the last 18,000 yr. 2) Ice flow was from the southeast and was derived from an expanded Cook Ice Shelf. 3) Deposition of lodgement till took place over an irregular sub-glacial surface, primarily in depressions. 4) Erosion and redeposition of older glacial and or glacial marine sediments from higher parts of the shelf were extensive. 5) Retreat of the ice sheet was rapid and left a widespread, thin unit of winnowed glacial marine sediment and localized turbidites in the far eastern and western parts of the area. 6) Modern sedimentation is dominated by biogenic and marine current processes.

35-3193
Adenosine triphosphate (ATP), chlorophyll, and organic nitrogen in endolithic microbial communities and adjacent soils in the dry valleys of southern Victoria Land.
Friedmann, E I , et al, *Antarctic journal of the United States,* 1980, 15(5), p.164-166, 8 refs
LaRock, P.A., Brunson, J.O.
Soil microbiology, Lichens, Soil science, Antarctica—Victoria Land.
This study provides preliminary data on the biomass of endolithic microbial communities that colonize rocks in the cold desert of the dry valleys Twenty-four samples were analyzed Among 20 samples of Beacon sandstone, 16 contained cryptoendolithic lichens and 4 were colonized by cryptoendolithic cyanobacteria. Three soil samples were collected near sandstone boulders that were colonized by lichens One sample (Koettlitz marble with chasmoendolithic algae and cyanobacteria) was from the coastal desert near Gneiss Point, outside the high mountain desert area of the dry valleys. Kjeldahl nitrogen, adenosine triphosphate (ATP), chlorophyll a, and total organic matter were determined in the rocks and adjacent soils The measurements are tabulated and discussed The three soil samples contained 1.97 to 6 06 g. sq m organic nitrogen, but no chlorophyll. They contained significantly higher amounts of ATP than the rocks, even higher amounts than could be attributed to nonphotosynthetic soil microbial flora. A possible explanation is offered

35-3194
Lidar measurements in Antarctica.
Smiley, V.N., *Antarctic journal of the United States,* 1980, 15(5), p.188-190, 2 refs.
Clouds (meteorology), Ice crystal growth, Precipitation (meteorology).
The objectives of activities for the 1979-80 season were: 1) to take vertical backscatter and depolarization profiles of low-lying clouds; 2) to determine from the depolarization ratios whether ice crystal, water droplet, or mixed-phase clouds were present; and 3) to relate the observed events to local meteorological conditions. Significant results were found and publications are being prepared. An example of a lidar return from clear sky ice crystal precipitation data from this period is shown Also shown and discussed are examples of depolarization-sensitive lidar returns of 1) water drop and ice crystal precipitation at Amundsen-Scott Station in 1976, and 2) mixed-phase cloud and mixture of rain and snow precipitation at Palmer Station in 1978.

35-3195
Ship operations, *Deep Freeze* 80.
Taylor, P.R., *Antarctic journal of the United States,* 1980, 15(5), p.230-232.
Icebreakers.
Three U.S. Coast Guard icebreakers operated in Antarctica during *Deep Freeze* 80 USCGC *Polar Sea* performed the channel break-in to McMurdo, escorted the USNS *Maumee* into Winter Quarters Bay, supported science and provided transport for passengers and cargo enroute to Ushuaia, Argentina, via Palmer Station, and supported science in the Weddell Sea USCGC *Northwind* called at Campbell I., supported Ross Sea science, and assisted with the McMurdo icebreaking and channel tending. USCGC *Glacier* supported Ross Sea science, provided resupply ship assistance, towed the ice wharf to sea, and called at Campbell I. The dry cargo ship USNS *Pvt. John R. Towle* and tankship USNS *Maumee* provided the cargo and fuel resupply to McMurdo Details of the ships' itineraries and operations are outlined.

35-3196
Coastal-inland distributions of summer air temperature and precipitation in northern Alaska.
Haugen, R.K., et al, *Arctic and alpine research,* Nov. 1980, 12(4), MP 1439, p.403-412, 22 refs.
Tundra, Precipitation (meteorology), Air temperature, Shores, Long range forecasting, Wind factors, United States—Alaska—North Slope.
Using data from summer air temperature stations from the inland tundra to the immediate coastal area, regression analyses of the air temperature data from 1975 to 1978 were used to predict temperature values across the Alaskan Arctic Coastal Plain based upon latitude and longitude. This provides the best approximation of average values based on existing data. Mean monthly temperature, mean daily range of temperature, and thawing-degree days all increase with distance from the coast The estimated July normal for Atkasook, 48 km south of the coast, is 8.7 C, while the established 30-yr normal for Barrow, on the coast, is 3 7 C The July average temperature 6 km due south of the open water of Prudhoe Bay is 2 C higher than on the immediate coast. Within the area under the dominant influence of the sea breeze, regression analyses suggest a more precise relationship between air temperature and distance along the prevailing wind vector (N75 E) than between temperature and distance due north to the sea.

35-3197
Vegetational change and ice-wedge polygons through the thaw-lake cycle in Arctic Alaska.
Billings, W.D., et al, *Arctic and alpine research,* Nov. 1980, 12(4), p.413-432, Refs. p.430-432.
Peterson, K.M.
Tundra, Revegetation, Lakes, Drainage, Ice wedges, Thawing, Polygonal topography.

35-3198
Distribution and variability of soils near Atkasook, Alaska.
Everett, K.R , *Arctic and alpine research,* Nov. 1980, 12(4), p.433-446, 17 refs.
Periglacial processes, Active layer, Alluvium, Soil composition, Soil water, Soil chemistry, Soil physics, Vegetation.

35-3199
Two low Arctic vegetation maps near Atkasook, Alaska.
Komárková, V , et al, *Arctic and alpine research,* Nov 1980, 12(4), p.447-472, Refs. p.470-472.
Webber, P.J.
Vegetation, Tundra, Remote sensing, Mapping, Ecosystems, Permafrost weathering, Soil water, Wind erosion, Snow cover effect, Plants (botany).

35-3200
Tundra vegetational patterns and succession in relation to microtopography near Atkasook, Alaska.
Peterson, K M , et al, *Arctic and alpine research,* Nov 1980, 12(4), p.473-482, 27 refs.
Billings, W.D.
Tundra, Vegetation, Periglacial processes, Topographic features, Seasonal freeze thaw, Permafrost, Environmental impact.

35-3201
Nutritional ecology of microtine rodents: resource utilization near Atkasook, Alaska.
Batzli, G.O., et al, *Arctic and alpine research,* Nov. 1980, 12(4), p.483-499, 26 refs.
Jung, H.G.
Tundra, Animals, Grazing, Ecology, Vegetation, Plants (botany).

35-3202
Distribution, abundance, and foraging patterns of ground squirrels near Atkasook, Alaska.
Batzli, G.O., et al, *Arctic and alpine research,* Nov. 1980, 12(4), p.501-510, 17 refs.
Sobaski, S.T.
Tundra, Vegetation, Animals, Grazing, Ecology.

35-3203
Habitat preference and forage consumption by reindeer and caribou near Atkasook, Alaska.
White, R.G., et al, *Arctic and alpine research,* Nov. 1980, 12(4), p.511-529, Refs p.527-529.
Trudell, J.
Tundra, Animals, Grazing, Vegetation, Ecosystems.

35-3204
Growth and physiological responses of tundra plants to defoliation.
Archer, S., et al, *Arctic and alpine research,* Nov. 1980, 12(4), p.531-552, Refs. p.549-552.
Tieszen, L.L.
Tundra, Vegetation, Growth, Environmental impact, Grazing, Plants (botany), Seasonal variations.

35-3205
Nutrient allocation and responses to defoliation in tundra plants.
Chapin, F.S., III, *Arctic and alpine research,* Nov. 1980, 12(4), p.553-563, Refs. p.561-563.
Tundra, Plants (botany), Vegetation, Growth, Nutrient cycle.

35-3206
Some effects of mammalian herbivores and fertilization on tundra soils and vegetation.
McKendrick, J.D., et al, *Arctic and alpine research,* Nov. 1980, 12(4), p.565-578, 25 refs.
Batzli, G.O., Everett, K.R., Swanson, J.C.
Tundra, Organic soils, Vegetation, Animals, Grazing, Plants (botany).

35-3207
Five stage program beats snow with Toledo's mobilized forces. *Better roads,* Aug. 1980, 50(8), p.9-11.
Snow removal, Ice removal, Roads, Winter maintenance, Manpower.

35-3208
Salt institute's sensible salting program provides winter guidelines. *Better roads,* Aug. 1980, 50(8), p.12-14.
Salting, Chemical ice prevention, Ice removal, Snow removal, Road maintenance, Winter maintenance, Cost analysis.

35-3209
Pre- and post-drainage development of the shore morphology and stratigraphy of Lake Hoytiäinen, eastern Finland.
Vesajoki, H., *Finland. University of Joensuu. Publications. Series B(2),* 1980, No.13, 30p., 52 refs.
Shoreline modification, Moraines, Ice pressure, Shore erosion, Geomorphology, Stratigraphy, Drainage, Sediments.

35-3210
Conquering Alaska's Arctic drilling problems. Part 1—Operations.
Moore, S.D , *Petroleum engineer international,* May 1981, 53(6), p.79, 82, 84, 88.
Offshore drilling, Oil wells, Oil recovery, Tundra, Environmental protection, Exploration, United States—Alaska—Prudhoe Bay.

35-3211
Cryolithologic analysis. {Kriolitologicheskiĭ analiz},
Gasanov, Sh.Sh., Moscow, Nauka, 1981, 195p., In Russian with English summary enclosed. Refs p.184-194.
Slope processes, Permafrost origin, Permafrost structure, Ground ice, Ice veins, Ice wedges, Geocryology, Permafrost weathering, Cryogenic soils, Tundra, Deserts, Taiga, Permafrost hydrology, Solifluction.

35-3212
Influence of butt-welding defects on the strength of joints at low temperatures. {Vliianie defektov kontaktnoĭ stykovoĭ svarki na prochnost' soedineniĭ pri nizkikh temperaturakh},
Kuchuk-IAtsenko, S.I., et al, *Avtomaticheskaia svarka,* Dec. 1980, No.12, p.1-3, In Russian. 5 refs.
Gas pipelines, Steels, Welding, Joints (junctions), Cold weather performance, Brittleness.

35-3213
Floral-phytocenologic classification of grass communities in the Zeya-Bureya area of the Amur River region. {Floristiko-fitotsenologicheskaia klassifikatsiia travianykh soobshchestv Zeĭsko-Bureinskogo Priamur'ia},
Dymina, G.D., *Botanicheskiĭ zhurnal,* Oct. 1980, 65(10), p.1392-1403. In Russian with English summary. 31 refs.
Taiga, Landscape types, Meadow soils, Grasses, Plant ecology, Ecosystems, Classifications.

35-3214
Significance of B.N. Gorodkov's studies for the development of tundra science. {Znachenie rabot B.N. Gorodkova dlia razvitiia tundrovedeniia},
Aleksandrova, V.D., *Botanicheskiĭ zhurnal,* Nov. 1980, 65(11), p.1513-1522, In Russian. Refs. p.1519-1522.
Bibliographies, Tundra, Landscape types, Alpine tundra, Forest tundra, Cryogenic soils, Vegetation, Classifications, Patterned ground.

35-3215
Ultrastructure of cells of leaf chlorenchyma in some Arctic plants. {Ul'trastruktura kletok khlorenkhimy lista nekotorykh predstaviteleĭ flory Kraĭnego Severa},
Miroslavov, E.A., et al, *Botanicheskiĭ zhurnal,* Nov 1980, 65(11), p.1523-1530, In Russian with English summary. 20 refs.
Bubolo, L.S.
Landscape types, Arctic landscapes, Tundra, Plant ecology, Plant physiology.

35-3216
Phytocenotic organization of some types of vegetational cover in the Far North. {Fitotsenoticheskaia organizatsiia nekotorykh tipov rastitel'nogo pokrova Kraĭnego Severa},
Norin, B.N., *Botanicheskiĭ zhurnal,* Nov. 1980, 65(11), p.1531-1542, In Russian with English summary. 16 refs.
Vegetation patterns, Tundra, Cryogenic soils, Patterned ground, Forest tundra.

35-3217
Two trips to the Bol'shoy Begichev Island (brief outline of flora and vegetation). {Dve poezdki na ostrov Bol'shoĭ Begichev (kratkiĭ ocherk flory i rastitel'nosti)},
Matveeva, N.V., *Botanicheskiĭ zhurnal,* Nov. 1980, 65(11), p.1543-1559, In Russian with English summary. 10 refs.
Continuous permafrost, Permafrost structure, Vegetation patterns, Tundra, Active layer, Lichens, Mosses, Topographic features, USSR—Laptev Sea, USSR—Bol'shoy Begichev Island.

35-3218
Flora of the Saskylakh village area (the Anabar River, northwestern Yakutia). {Flora okrestnostei poselka Saskylakh na reke Anabar (Severo-Zapadnaia IAkutiia)},
Andreev, V.N., et al, *Botanicheskiĭ zhurnal,* Nov. 1980, 65(11), p.1560-1568, In Russian with English summary. 15 refs.
Perfil'eva, V.I., Nakhabtseva, S.F.
Subarctic landscapes, Tundra, Forest tundra, Vegetation patterns, Plant ecology, Plant physiology.

35-3219
Snow cover effect on vegetation distribution in the southeastern Chukotskiy Peninsula. (Vliianie snezhnogo pokrova na raspredelenie rastitel'nosti na iugovostoke Chukotskogo poluostrova).
Balandin, S.A., et al, *Botanicheskii zhurnal*, Dec. 1980, 65(12), p.1719-1733, In Russian with English summary. 11 refs.
Razzhivin, V.IU.
Tundra, Landscape types, Snow cover distribution, Cryogenic soils, Vegetation patterns, Plant ecology, Ecosystems, Snow cover effect, USSR—Chukotskiy Peninsula.

35-3220
Characteristics of assimilation organs in creeping plants of the White Sea islands. (K kharakteristike assimiliatsionnogo apparata stelushchikhsia rastenii ostrovov Belogo Moria).
Zabotina, L.N., et al, *Botanicheskii zhurnal*, Dec. 1980, 65(12), p.1779-1784, In Russian. 19 refs.
Pruzhina, E.G.
Landscape types, Tundra, Forest tundra, Plant ecology, Plant physiology.

35-3221
Lichen genera Cladina and Cladonia from the Anyuy Highlands. (Lishaĭniki rodov Cladina i Cladonia Aniuĭskogo nagor'ia).
Andreev, M.P., *Botanicheskii zhurnal*, Jan. 1981, 66(1), p.31-41, In Russian with English summary. 36 refs.
Arctic landscapes, Tundra, Alpine tundra, Lichens, Mosses, Vegetation patterns, Swamps, USSR—Chukotskiy Peninsula.

35-3222
Cleistogamy in Arctic grasses. (Kleĭstogamiia arkticheskikh zlakov).
Levkovskiĭ, V.P., et al, *Botanicheskii zhurnal*, Jan. 1981, 66(1), p.116-120, In Russian. 30 refs.
Tikhmenev, E.A., Levkovskiĭ, E.P.
Arctic landscapes, Tundra, Grasses, Plant ecology, Plant physiology, Ecosystems, USSR—Wrangel Island.

35-3223
Forecasting thermal regime of frozen rocks beneath natural and artificial covers. (Prognoz teplovogo rezhima merzlykh gornykh porod pod estestvennymi i iskusstvennymi pokrovami).
Smorygin, G.I., Novosibirsk, Nauka, 1980, 189p., In Russian with English table of contents enclosed. Refs. p.177-187.
Soil freezing, Frost penetration, Frozen rock temperature, Vegetation factors, Paludification, Heat transfer, Vapor transfer, Mathematical models, Permafrost, Artificial melting, Taliks, Thermal insulation, Frost protection, Plastics, Flooding.

35-3224
Application of airborne radar surveying in geologic and geographic investigations. (Primenenie radiolokatsionnoĭ aerosʺemki pri geologo-geograficheskikh issledovaniiakh).
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Komarova, V.B., ed.
Airborne radar, Side looking radar, Glaciers, Radar echoes, Radar photography, Photointerpretation, Sea ice, Drift, Ice surveys, Ice navigation.

35-3225
Physical and mechanical properties of frozen peat soils. (Fiziko-mekhanicheskie svoĭstva merzlykh torfianykh gruntov).
Roman, L.T., Novosibirsk, Nauka, 1981, 134p., In Russian with English table of contents enclosed. Refs. p.128-133.
Organic soils, Peat, Soil freezing, Frozen ground temperature, Frozen ground strength, Soil mechanics, Soil physics, Soil classification.

35-3226
Ecosystems in the hot-spring area of Chukotskiy Peninsula (hydrogeology, vegetation structure, autotrophic components). (Ekosistemy termal'nykh istochnikov Chukotskogo poluostrova (gidrogeologiia, struktura rastitel'nosti, avtotrofnye komponenty)).
IUrtsev, B.A., ed, Leningrad, Nauka, 1981, 141p., In Russian with English table of contents enclosed. Refs. p.128-140.
Tundra, Landscape types, Hot springs, Mosses, Lichens, Plant ecology, Ecosystems, USSR—Chukotskiy Peninsula.

35-3227
Engineering-geological conditions of oil and gas-bearing areas in Northern Zaural'e. (Inzhenerno-geologicheskie usloviia neftegazonosnykh raionov Severnogo Zaural'ia).
Zakharov, IU.F., et al, Moscow, Nauka, 1981, 143p., In Russian with English table of contents enclosed. Refs. p.140-142.
Khasanov, M.F.
Petroleum industry, Permafrost distribution, Sporadic permafrost, Swamps, Pipelines, Permafrost beneath structures, Environmental protection.

35-3228
Vegetation of the southern part of the Barguzin Range. (Rastitel'nost' iuzhnoĭ chasti Barguzinskogo khrebta).
Tiutina, L.N., Novosibirsk, Nauka, 1981, 85p., In Russian with English table of contents enclosed. 50 refs.
Alpine landscapes, Alpine tundra, Vegetation, Plant ecology, Ecosystems, Forest land, Meadows, Cryogenic soils, USSR—Barguzin Range.

35-3229
Landscape indicators of engineering and hydrogeological conditions on plains east of Altai. (Landshaftnye indikatory inzhenerno-gidrogeologicheskikh uslovii predaltaĭskikh ravnin).
Vinokurov, IU.I., Novosibirsk, Nauka, 1980, 191p., In Russian with English table of contents enclosed. Refs p.161-177.
Landscape types, Geobotanical interpretation, Hydrogeology, Saline soils, Podsol, Cryogenic soils, Swamps, Peat, Fines, Frost heave, Engineering geology.

35-3230
Northern dwellings. (Severnoe zhilishche).
Putintsev, E., Poliarnyĭ krug (The Arctic circle) edited by V.I. Bardin, Moscow, Mysl', 1980, p.38-46, In Russian.
Arctic landscapes, Urban planning, Residential buildings, Houses, Permafrost beneath structures, Walls, Windows, Design.

35-3231
Routes in the ice. (Trassy vo l'dakh).
Chubakov, K., et al, Poliarnyĭ krug (The Arctic circle) edited by V.I. Bardin, Moscow, Mysl', 1980, p.104-111, In Russian.
Shar-Baronov, L.
Sea ice, Ice navigation, Icebreakers, Ice breaking.

35-3232
"Edoma": problems and puzzles. (Edoma, problemy, zagadki).
Vtiurin, B., et al, Poliarnyĭ krug (The Arctic circle) edited by V.I. Bardin, Moscow, Mysl', 1980, p.265-271, In Russian.
Bolikhovskiĭ, V.
Frozen fines, Loess, Ground ice, Permafrost structure, Ice veins, Permafrost weathering, Origin, USSR—Yakutia.

35-3233
Design and construction of drainage systems. (Konstruktsiia i raschet drenazhnykh ustroĭstv).
Tulaev, A.IA., Moscow, Transport, 1980, 191p., In Russian with English table of contents enclosed 9 refs.
Roads, Pavements, Roadbeds, Swamps, Seasonal freeze thaw, Ice lenses, Frost heave, Peat, Sands, Drainage.

35-3234
Environmental assessment of the Alaskan continental shelf, Vol.5. Hazards. Rockville, Md., U.S. National Oceanic and Atmospheric Administration, Feb. 1981, 659p., Principal investigators' annual reports for the year ending March 1980. For selected reports see 35-3235 through 35-3251.
Subsea permafrost, Bottom sediment, Sedimentation, Geologic processes, Geomorphology, Seismic surveys.

35-3235
Beaufort seacoast permafrost studies.
Rogers, J.C., et al, Environmental assessment of the Alaskan continental shelf, Vol. 5. Hazards. Principal investigators' annual reports for the year ending March 1980, Rockville, Md., U.S. National Oceanic and Atmospheric Administration, 1981, p.1-44, 19 refs.
Morack, J.L.
Subsea permafrost, Permafrost distribution, Seismic refraction, Drilling, Beaufort Sea.

35-3236
Synthesis report: environmental geology of Kodiak Shelf.
Hampton, M.A., Environmental assessment of the Alaskan continental shelf, Vol. 5. Hazards. Principal investigators' annual reports for the year ending March 1980, Rockville, Md., U.S. National Oceanic and Atmospheric Administration, 1981, p.49-58.
Marine geology, Bottom sediment, Bottom topography, Seismic surveys.

35-3237
Hydrocarbon gases in sediments from Kodiak Shelf.
Kvenvolden, K.A., Environmental assessment of the Alaskan continental shelf, Vol 5 Hazards Principal investigators' annual reports for the year ending March 1980, Rockville, Md., U.S. National Oceanic and Atmospheric Administration, 1981, p.59-112, Refs p.68-71.
Bottom sediment, Gas inclusions, Hydrocarbons, Seismic refraction.

35-3238
Depositional environments and Quaternary sedimentary units within lower Cook Inlet, Alaska—a high-energy tidally dominated embayment along the Pacific margin of the United States.
Rappeport, M.L., Environmental assessment of the Alaskan continental shelf, Vol. 5. Hazards. Principal investigators' annual reports for the year ending March 1980, Rockville, Md., U.S. National Oceanic and Atmospheric Administration, 1981, p.170-180, 26 refs.
Bottom sediment, Bottom topography, Sedimentation, Quaternary deposits, Seismic surveys, Tides, Sea level, Ocean currents.

35-3239
Hydrocarbon gases in near-surface sediment of northern Bering Sea (Norton Sound and Chirikov Basin).
Kvenvolden, K.A., et al, Environmental assessment of the Alaskan continental shelf, Vol. 5. Hazards. Principal investigators' annual reports for the year ending March 1980, Rockville, Md., U.S. National Oceanic and Atmospheric Administration, 1981, p.215-243, Refs. p.232-235.
Redden, G.D., Thor, D.R., Nelson, C.H.
Gas inclusions, Bottom sediment, Hydrocarbons, Origin, Geochemistry, Bering Sea.

35-3240
Biogenic and thermogenic gas in gas-charged sediment of Norton Sound, Alaska.
Kvenvolden, K.A., et al, Environmental assessment of the Alaskan continental shelf, Vol. 5. Hazards Principal investigators' annual reports for the year ending March 1980, Rockville, Md., U.S. National Oceanic and Atmospheric Administration, 1981, p.244-250, 21 refs. Presented at the 11th Annual OTC, Houston, Tex., April 30-May 3, 1979.
Ocean bottom, Bottom sediment, Gas inclusions, Geochemistry.

35-3241
Thermogenic gases in near-surface sediments of Norton Sound, Alaska.
Nelson, H., et al, Environmental assessment of the Alaskan continental shelf, Vol. 5. Hazards. Principal investigators' annual reports for the year ending March 1980, Rockville, Md., U.S. National Oceanic and Atmospheric Administration, 1981, p.251-260, 16 refs. Presented at the 10th Annual OTC, Houston, Tex., May 8-11, 1978.
Kvenvolden, K.A., Clukey, E.C.
Bottom sediment, Ocean bottom, Gas inclusions, Hydrocarbons.

35-3242
Distribution of gas-charged sediments in Norton Basin, northern Bering Sea.
Holmes, M.L., et al, Environmental assessment of the Alaskan continental shelf, Vol 5. Hazards. Principal investigators' annual reports for the year ending March 1980, Rockville, Md., U.S. National Oceanic and Atmospheric Administration, 1981, p.261-287, 18 refs.
Thor, D.R.
Bottom sediment, Ocean bottom, Gas inclusions, Bottom topography, Seismic reflection, Acoustics, Distribution.

35-3243
Ice gouging on the subarctic Bering shelf.
Thor, D.R., et al, Environmental assessment of the Alaskan continental shelf, Vol 5 Hazards. Principal investigators' annual reports for the year ending March 1980, Rockville, Md., U S National Oceanic and Atmospheric Administration, 1981, p.286-314, 37 refs.
Nelson, C.H.
Sea ice, Ice scoring, Geologic processes, Bottom sediment, Bottom topography, Ice conditions, Bering Sea.

35-3244
Areas of active, large scale sand wave and ripple fields with scour potential on the Norton Basin sea floor.
Nelson, H., et al, Environmental assessment of the Alaskan continental shelf, Vol 5 Hazards. Principal investigators' annual reports for the year ending March 1980, Rockville, Md., U S National Oceanic and Atmospheric Administration, 1981, p.315-331, 8 refs.
Field, M.E., Cacchione, D.A., Drake, D.E.
Bottom topography, Bottom sediment, Sands, Ice scoring, Ocean currents, Side looking radar.

35-3245
Depositional and erosional features of the inner shelf, northeastern Bering Sea.
Hunter, R.E., et al, Environmental assessment of the Alaskan continental shelf, Vol. 5. Hazards. Principal investigators' annual reports for the year ending March 1980, Rockville, Md., U.S. National Oceanic and Atmospheric Administration, 1981, p.332-267, Refs. p.351-354.
Thor, D.R., Swisher, M.L.
Ocean bottom, Sedimentation, Erosion, Bottom topography, Bottom sediment, Drift, Water waves, Ocean currents, Bering Sea.

35-3246
Graded storm sand layers offshore from the Yukon Delta, Alaska.
Nelson, C H, Environmental assessment of the Alaskan continental shelf, Vol. 5 Hazards. Principal investigators' annual reports for the year ending March 1980, Rockville, Md., U.S. National O..anic and Atmospheric Administration, 1981. p.368-388, 15 refs
Bottom sediment, Bottom topography, Geologic processes, Sedimentation, Erosion, Storms.

35-3247
Geotechnical characteristics of bottom sediment in the northern Bering Sea.
Olsen, H.W., et al, Environmental assessment of the Alaskan continental shelf, Vol 5 Hazards Principal investigators' annual reports for the year ending March 1980, Rockville, Md., U.S. National Oceanic and Atmospheric Administration, 1981, p.389-419, 24 refs.
Clukey, E.C., Nelson, C.H.
Bottom sediment, Ocean bottom, Paleoclimatology.

35-3248
Report on surface and subsurface faulting in Norton Sound and Chirikov Basin, Alaska.
Johnson, J.L., et al, Environmental assessment of the Alaskan continental shelf, Vol. 5. Hazards. Principal investigators' annual reports for the year ending March 1980, Rockville, Md., U.S. National Oceanic and Atmospheric Administration, 1981, p.420-444, 25 refs.
Holmes, M.L.
Ocean bottom, Bottom sediment, Bottom topography, Geologic processes, Geomorphology, Seismic reflection, Acoustic measurement.

35-3249
Distribution of trace elements in bottom sediment of northern Bering Sea.
Larsen, B.R., et al, Environmental assessment of the Alaskan continental shelf, Vol. 5. Hazards. Principal investigators' annual reports for the year ending March 1980, Rockville, Md., U.S. National Oceanic and Atmospheric Administration, 1981, p.445-567, Refs. p.487-491.
Nelson, C.H., Heropoulos, C., Patry, J.J.
Bottom sediment, Ocean bottom, Geochemistry, Distribution, Bering Sea.

35-3250
Seismotectonic studies of western Alaska and sea ice studies in Beaufort Sea.
Biswas, N N, et al, Environmental assessment of the Alaskan continental shelf, Vol 5 Hazards Principal investigators' annual reports for the year ending March 1980, Rockville, Md., U.S. National Oceanic and Atmospheric Administration, 1981, p 575-618, 19 refs.
Sackinger, W.M., Gedney, L.
Sea ice distribution, Drift, Icequakes, Seismology, Tectonics, Beaufort Sea.

35-3251
Environmental geology and geomorphology of the barrier island-lagoon system along the Beaufort Sea coastal plain from Prudhoe Bay to the Colville River.
Cannon, P.J., Environmental assessment of the Alaskan continental shelf, Vol. 5. Hazards. Principal investigators' annual reports for the year ending March 1980, Rockville, Md., U.S. National Oceanic and Atmospheric Administration, 1981, p.619-634, 3 refs.
Geomorphology, Geology, Coastal topographic features, Tuliks, Lakes, Beaufort Sea.

35-3252
Environmental assessment of the Alaskan continental shelf, Vol.8. Biological studies. Rockville, Md., U.S. National Oceanic and Atmospheric Administration, Feb. 1981, 359p., Principal investigators' final reports. Numerous refs. passim.
Marine biology, Ecosystems, Nutrient cycle, Biomass, Sea ice, Environmental impact, Algae.

35-3253
Environmental assessment of the Alaskan continental shelf, Vol.7. Biological studies. Rockville, Md., U.S. National Oceanic and Atmospheric Administration, Feb. 1981, 678p., Principal investigators' final reports. Refs. passim. For selected report see 35-3254.
Marine biology, Marine deposits, Ecology, Animals, Ice cover effect, Natural resources, Fish, Beaufort Sea.

35-3254
Physical processes.
Truett, J C, Environmental assessment of the Alaskan continental shelf, Vol.7. Biological studies. Principal investigators' final reports, Rockville, Md., U.S. National Oceanic and Atmospheric Administration, Feb. 1981, p.52-108, Refs. p.101-108.
Ocean currents, Sediment transport, Bottom sediment, Bottom topography, Sea ice, Ice cover effect, Beaufort Sea.

35-3255
Environmental assessment of the Alaskan continental shelf, Vol.4. Hazards. Rockville, Md., U.S. National Oceanic and Atmospheric Administration, [1981], 677p., Principal investigators' annual reports for the year ending March 1980. For selected reports see 35-3256 through 35-3268.
Bottom sediment, Subsea permafrost, Seismology, Volcanoes, Ice scoring, Gas inclusions, Sea ice distribution.

35-3256
Delineation and engineering characteristics of permafrost beneath the Beaufort Sea.
Sellmann, P.V., et al, MP 1428, Environmental assessment of the Alaskan continental shelf, Vol.4. Hazards. Principal investigators' annual reports for the year ending March 1980, Rockville, Md., U.S. National Oceanic and Atmospheric Administration, 1981, p.125-157, 14 refs.
Chamberlain, E., Delaney, A., Neave, K.G
Subsea permafrost, Permafrost distribution, Bottom sediment, Drill core analysis, Mapping, Engineering, Seismic refraction, Wave propagation.

35-3257
Offshore permafrost studies and shoreline history as an aid to predicting offshore permafrost conditions.
Smith, P.A., et al, Environmental assessment of the Alaskan continental shelf, Vol.4. Hazards. Principal investigators' annual reports for the year ending March 1980, Rockville, Md., U.S. National Oceanic and Atmospheric Administration, 1981, p.159-255, Refs. passim. Includes three relevant reports, as appendices, see 35-3258 through 35-3268.
Hartz, R.W., Hopkins, D.M.
Subsea permafrost, Permafrost forecasting, Shoreline modification, Geologic processes, Bottom sediment, Ocean bottom, Radioactive age determination, Boreholes.

35-3258
Review of offshore permafrost studies, Beaufort Sea, Alaska, 1976 to 1980.
Hartz, R M, et al, Environmental assessment of the Alaskan continental shelf, Vol.4 Hazards. Principal investigators' annual reports for the year ending March 1980, Rockville, Md., U.S National Oceanic and Atmospheric Administration, 1981, p.167-177.
Hopkins, D.M.
Subsea permafrost, Boreholes, Natural resources, Beaufort Sea.

35-3259
Coastal morphology, coastal erosion, and barrier islands of the Beaufort Sea coast, Alaska.
Hopkins, D M, et al, Environmental assessment of the Alaskan continental shelf, Vol.4. Hazards. Principal investigators' annual reports for the year ending March 1980, Rockville, Md., U S. National Oceanic and Atmospheric Administration, 1981, p 178-186.
Hartz, R.W.
Shore erosion, Coastal topographic features, Sediment transport, Water waves, Geologic processes, Beaches, Thermokarst, Bottom topography.

35-3260
Likelihood of encountering permafrost in submerged areas of northern Bering Sea.
Hopkins, D.M., Environmental assessment of the Alaskan continental shelf, Vol.4. Hazards. Principal investigators' annual reports for the year ending March 1980, Rockville, Md., U.S. National Oceanic and Atmospheric Administration, 1981, p.188-202, 26 refs.
Subsea permafrost, Permafrost distribution, Bottom sediment, Sea level, Bering Sea.

35-3261
Geologic processes and hazards of the Beaufort Sea shelf and coastal regions.
Barnes, P., et al, Environmental assessment of the Alaskan continental shelf, Vol.4. Hazards. Principal investigators' annual reports for the year ending March 1980, Rockville, Md, U.S. National Oceanic and Atmospheric Administration, 1981, p.257-355, Refs. passim. Includes 5 relevant reports, see 35-3262 through 35-3266.
Reimnitz, E.
Geologic processes, Sea ice distribution, Ice conditions, Coastal topographic features, Shores, Erosion, Seasonal variations, Beaufort Sea.

35-3262
New seismic evidence for a widespread occurrence of gas in submarine sediments at shallow depths, Prudhoe Bay, Alaska.
Boucher, G., et al, Environmental assessment of the Alaskan continental shelf, Vol.4 Hazards. Principal investigators' annual reports for the year ending March 1980, Rockville, Md., U.S. National Oceanic and Atmospheric Administration, 1981, p.276-283, 5 refs.
Reimnitz, E., Kempema, E.
Bottom sediment, Gas inclusions, Seismic refraction, Subsea permafrost.

35-3263
Overconsolidated surficial deposits on the Beaufort Sea shelf.
Reimnitz, E, et al, Environmental assessment of the Alaskan continental shelf, Vol.4. Hazards. Principal investigators' annual reports for the year ending March 1980, Rockville, Md., U.S. National Oceanic and Atmospheric Administration, 1981, p.284-312, 12 refs.
Kempema, E., Ross, R., Minkler, P.
Bottom sediment, Composition, Settlement (structural), Clays, Overconsolidation, Beaufort Sea.

35-3264
Reassessment of ice gouging on the inner shelf of the Beaufort Sea, Alaska—a progress report.
Rearic, D., et al, Environmental assessment of the Alaskan continental shelf, Vol.4. Hazards. Principal investigators' annual reports for the year ending March 1980, Rockville, Md., U.S. National Oceanic and Atmospheric Administration, 1981, p.318-332, 10 refs.
Barnes, P.
Ice scoring, Bottom sediment, Geologic processes, Ocean bottom, Side looking radar.

35-3265
Break in gouge character related to ice ridges.
Barnes, P., et al. Environmental assessment of the Alaskan continental shelf, Vol.4 Hazards Principal investigators' annual reports for the year ending March 1980, Rockville, Md., U.S. National Oceanic and Atmospheric Administration, 1981, p.333-343, 8 refs.
Ross, R., Reimnitz, E.
Ice scoring, Bottom sediment, Bottom topography, Ice surface, Ground ice.

35-3266
Super sea-ice kettles in the arctic nearshore zone—Reindeer Island.
Reimnitz, E., et al. Environmental assessment of the Alaskan continental shelf, Vol.4. Hazards. Principal investigators' annual reports for the year ending March 1980, Rockville, Md., U.S. National Oceanic and Atmospheric Administration, 1981, p.344-355, 6 refs
Kempema, E.
Sea ice distribution, Ice conditions, Grounded ice, Bottom topography, Ocean bottom, Erosion, Ocean currents.

35-3267
Subsea permafrost: probing, thermal regime and data analysis.
Osterkamp, T.E., et al. Environmental assessment of the Alaskan continental shelf, Vol.4 Hazards. Principal investigators' annual reports for the year ending March 1980, Rockville, Md., U.S. National Oceanic and Atmospheric Administration, 1981, p.497-677, Refs. passim. For appendix see 35-3268.
Harrison, W.D.
Subsea permafrost, Permafrost thermal properties, Probes, Drill core analysis, Thermal regime, Chemical analysis, Permafrost hydrology, Permafrost distribution, Sea ice, Ice conditions, Ice temperature.

35-3268
Sediment-laden sea ice: the role of frazil and anchor ice in its formation and development.
Osterkamp, T.E., et al. Environmental assessment of the Alaskan continental shelf, Vol.4 Hazards Principal investigators' annual reports for the year ending March 1980, Rockville, Md., U.S. National Oceanic and Atmospheric Administration, 1981, p.641-662, 3 refs.
Gosink, J.P.
Sea ice, Impurities, Marine deposits, Frazil ice, Ice formation, Sediments.

35-3269
Mathematical model of nozzle blockage by freezing.
Sampson, P., et al, *International journal of heat and mass transfer*, Feb 1981, 24(2), p.231-241, In English with French, German and Russian summaries 7 refs.
Gibson, R.D.
Pipes (tubes), Pipeline freezing, Liquid solid interfaces, Mathematical models, Solid phases.

35-3270
Variable time step methods for one-dimensional Stefan problem with mixed boundary conditions.
Gupta, R.S., et al, *International journal of heat and mass transfer*, Feb. 1981, 24(2), p.251-259, 18 refs., In English with French, German and Russian summaries.
Kumar, D.
Liquid solid interfaces, Stefan problem, Heat flux, Boundary layer, Thermal diffusion, Melting, Solid phases, Time factor.

35-3271
Liquid spray cooling of a heated surface.
Grissom, W.M., et al, *International journal of heat and mass transfer*, Feb 1981, 24(2), p.261-271, 50 refs., In English with French, German and Russian summaries.
Wierum, F.A.
Aerosols, Evaporation, Cooling rate, Heat flux, Atmospheric pressure.

35-3272
Freezing on finned tube for either conduction-controlled or natural-convection-controlled heat transfer.
Sparrow, E.M., et al, *International journal of heat and mass transfer*, Feb 1981, 24(2), p.273-284, 5 refs., In English with French, German and Russian summaries.
Larson, E.D., Ramsey, J.W.
Pipes (tubes), Freezing, Heat transfer, Liquid solid interfaces, Conduction, Convection.

35-3273
Modeling the geostrophic drag coefficient for AIDJEX.
Brown, R.A., *Journal of geophysical research*, Mar. 20, 1981, 86(C3), p.1989-1994, 10 refs.
Drift, Ice mechanics, Remote sensing, Mathematical models, Sea ice, Boundary layer.

35-3274
Characteristics of the Great Whale River plume.
Ingram, R.G., *Journal of geophysical research*, Mar. 20, 1981, 86(C3), p.2017-2023, 8 refs.
River flow, Ice cover effect, Runoff, River ice, Water temperature, Salinity.

35-3275
Wintertime temperature inversion in Kootenay Lake, British Columbia.
Wiegand, R.C., et al, *Journal of geophysical research*, Mar. 20, 1981, 86(C3), p.2024-2034, 34 refs
Carmack, E.C.
Lake water, Water temperature, Temperature inversions, Winter.

35-3276
Multiple reflection effects on irradiance in the presence of Arctic stratus clouds.
Wendler, G., et al, *Journal of geophysical research*, Mar 20, 1981, 86(C3), p.2049-2057, 40 refs.
Eaton, F.D., Ohtake, T.
Snow cover, Albedo, Cloud cover, Solar radiation, Reflection, Electromagnetic properties, Polynyas, Humidity, Seasonal variations, Radiation.

35-3277
Dome's "kick tolerance" formula for safe Beaufort Sea drilling.
Wilkie, D.I., et al, *Ocean industry*, Mar. 1981, 16(3), p.33-36.
Bernard, W.F.
Offshore drilling, Bottom sediment, Pressure, Equipment, Forecasting, Beaufort Sea.

35-3278
Spring ice jams in stream channels; physical principles and quantitative analysis.
Deev, IU.A., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1981, TL 759, 175p., ADB-056 677 For Russian original see 33-2832. 91 refs.
Popov, A.F.
Ice jams, Ice conditions, Icebound rivers, Ice breakup, Ice floes, Experimentation, Analysis (mathematics).
Ice jams as natural, regular formations with specific, but not identical forms, sizes and properties were examined This permitted a description of the theoretical principles of the investigated processes of jam formation in relatively total form. The material presented includes a) the establishment of initial theoretical concepts of a model of ice movement and ice jams, b) an investigation of the causes and formation mechanism of jams and their special features as a function of the concrete conditions of the external environment, c) a quantitative analysis of the elements of jam formation in the form used for solving applied problems; and d) theoretical bases and practical considerations for methods of combatting ice jams and controlling them.

35-3279
Organic matter in soils of Kola Peninsula. {Organicheskoe veshchestvo v pochvakh Kol'skogo poluostrova},
Pereverzev, V.N., et al, Leningrad, Nauka, 1980, 227p., In Russian with English table of contents enclosed. Refs. p.220-226.
Alekseeva, N.S.
Cryogenic soils, Soil composition, Soil chemistry, Nutrient cycle, Soil water migration, Swamps, Peat, Forest land, Biomass, Decomposition, Soil profiles, USSR—Kola Peninsula.

35-3280
Engineering studies of frozen ground. Soil properties and the dynamics of cryogenic processes. {Inzhenernye issledovaniia merzlykh gruntov. Svoistva gruntov i dinamika merzlotnykh protsessov},
Gur'ianov, I.E., ed, Novosibirsk, Nauka, 1981, 159p., In Russian. For individual papers see 35-3281 through 35-3292. Refs. passim.
Embankments, Earth fills, Foundations, Piles, Wells, Baykal Amur railroad, Permafrost beneath structures, Permafrost thermal properties, Seasonal freeze thaw, Frozen ground strength, Mine shafts, Ground ice, Sublimation, Permafrost weathering, Tundra, Gullies, Soil erosion, Drilling, Dredging.

35-3281
Peculiarities of thermal properties of soils in the eastern part of the Baykal Amur railroad area. {Nekotorye osobennosti teplovykh svoistv gruntov vostochnoi chasti trassy BAM},
Gavril'ev, R.I., et al, Inzhenernye issledovaniia merzlykh gruntov. Svoistva gruntov i dinamika merzlotnykh protsessov (Engineering studies of frozen ground. Soil properties and the dynamics of cryogenic processes) edited by I.E. Gur'ianov, Novosibirsk, Nauka, 1981, p.5-22, In Russian. 17 refs.
Nikiforov, I.D., Gulaia, O.P.
Permafrost beneath structures, Frozen ground temperature, Permafrost thermal properties, Baykal Amur railroad, Thermal conductivity, Ground ice, Frozen fines, Soil composition.

35-3282
Methods of determining thermal properties of frozen ground and rocks. {Metodika opredeleniia teplovykh svoistv merzlykh gruntov i gornykh porod},
Gavril'ev, R.I., Inzhenernye issledovaniia merzlykh gruntov. Svoistva gruntov i dinamika merzlotnykh protsessov (Engineering studies of frozen ground. Soil properties and the dynamics of cryogenic processes) edited by I.E. Gur'ianov, Novosibirsk, Nauka, 1981, p.22-36, In Russian. 10 refs
Frozen ground, Frozen rocks, Thermal properties, Ground thawing, Heat transfer, Analysis (mathematics).

35-3283
Thermophysical characteristics of clayey soils in the numerical solutions of freeze-thaw problems. {Teplofizicheskie kharakteristiki glinistykh gruntov pri chislennom reshenii zadach o promerzanii i ottaivanii},
Gur'ianov, I.E., Inzhenernye issledovaniia merzlykh gruntov. Svoistva gruntov i dinamika merzlotnykh protsessov (Engineering studies of frozen ground. Soil properties and the dynamics of cryogenic processes) edited by I.E. Gur'ianov, Novosibirsk, Nauka, 1981, p.36-45, In Russian. 29 refs.
Frozen fines, Clay soils, Freeze thaw cycles, Soil moisture migration, Phase transformations, Thermal properties, Analysis (mathematics).

35-3284
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Topography, Permafrost weathering, Thermokarst, Alassy, USSR—Yakutia.

35-3328
Thermodelapsing formations—deposits of young thermokarst basins. [Termodeliapsivnye obrazovaniia --otlozheniia molodykh termokarstovykh kotlovin],
Ivanov, M.S., Merzlotnye issledovaniia v osvaivaemykh raionakh SSSR (Permafrost investigations in economically developing areas of the USSR) edited by A.V. Pavlov and I.A. Nekrasov, Novosibirsk, Nauka, 1980, p.132-140, In Russian. 15 refs.
Thermokarst, Alassy, Frozen fines, Cryogenic structures, Permafrost structure, Ice wedges.

35-3329
Peculiarities of ground ice development around the pole of cold. {Osobennosti razvitiia podzemnykh l'dov v raĭone poliusa kholoda},
Gordeev, P.P., Merzlotnye issledovaniia v osvaivaemykh raĭonakh SSSR (Permafrost investigations in economically developing areas of the USSR) edited by A.V. Pavlov and I.A. Nekrasov, Novosibirsk, Nauka, 1980, p.141-147, In Russian. 7 refs.
Permafrost distribution, Ground ice, Continuous permafrost, Ice veins, Ice wedges, Patterned ground, Frost mounds, USSR—Yakutia.

35-3330
Cryogenic structure of moraines in Zailiyskiy Alatau. {O kriogennom stroenii moren Zailiĭskogo Alataŭ},
Ermolin, E.D., Merzlotnye issledovaniia v osvaivaemykh raĭonakh SSSR (Permafrost investigations in economically developing areas of the USSR) edited by A.V. Pavlov and I.A. Nekrasov, Novosibirsk, Nauka, 1980, p.147-153, In Russian. 5 refs.
Moraines, Ground ice, Ice crystals, Permafrost structure, Periglacial processes, Permafrost thickness, USSR—Zailiyskiy Alatau.

35-3331
Paleocryogenic structure of fluvio-glacial deposits in valleys of the Baykal Mountains. {Paleokriogennoe stroenie vodno-lednikovykh otlozheniĭ v dolinakh Baĭkal'skogo khrebta},
Bosikov, N.P., et al, Merzlotnye issledovaniia v osvaivaemykh raĭonakh SSSR (Permafrost investigations in economically developing areas of the USSR) edited by A.V. Pavlov and I.A. Nekrasov, Novosibirsk, Nauka, 1980, p.153-156, In Russian. 9 refs
Murzin, IU.A.
Permafrost distribution, Permafrost hydrology, Taliks, Topographic effects, Paleoclimatology, Periglacial processes, USSR—Baykal Mountains.

35-3332
Studies of slope processes in northern Yakutian research stations. {O statsionarnykh issledovaniiakh sklonovykh protsessov na severe IAkutii},
Sukhodrovskiĭ, V.L., Merzlotnye issledovaniia v osvaivaemykh raĭonakh SSSR (Permafrost investigations in economically developing areas of the USSR) edited by A.V. Pavlov and I.A. Nekrasov, Novosibirsk, Nauka, 1980, p.156-160, In Russian. 5 refs.
Slope processes, Geocryology, Solifluction, USSR—Yakutia.

35-3333
Plowing boulders. {"Borozdiashchie" valuny},
Gorbunov, A.P., Merzlotnye issledovaniia v osvaivaemykh raĭonakh SSSR (Permafrost investigations in economically developing areas of the USSR) edited by A.V. Pavlov and I.A. Nekrasov, Novosibirsk, Nauka, 1980, p.160-167.
Terminology, Slope processes, Rocks, Sliding, Slope orientation, Vegetation factors, Frost action.

35-3334
Cryogenic structure of eluvium in the Daldyno-Sytykan region (Southwestern Yakutia). {Kriogennoe stroenie eliuviia Daldyno-Sytykanskogo raĭona (Severo-Zapadnaia IAkutiia)},
Spesivtsev, V.I., Merzlotnye issledovaniia v osvaivaemykh raĭonakh SSSR (Permafrost investigations in economically developing areas of the USSR) edited by A.V. Pavlov and I.A. Nekrasov, Novosibirsk, Nauka, 1980, p.167-173, In Russian.
Permafrost weathering, Active layer, Seasonal freeze thaw, Frost shattering, Permafrost beneath lakes, Permafrost beneath rivers, Cryogenic structures, Ground ice, USSR—Yakutia.

35-3335
Palynologic substantiation of vicissitude of glaciation of Zyryan, southern Verkhoyansk. {Palinologicheskoe obosnovanie stadiĭnosti Zyriankskogo oledeneniia v IUzhnom Verkhoian'e},
Sopoeva, A.S., Merzlotnye issledovaniia v osvaivaemykh raĭonakh SSSR (Permafrost investigations in economically developing areas of the USSR) edited by A.V. Pavlov and I.A. Nekrasov, Novosibirsk, Nauka, 1980, p.173-176, In Russian.
Mountain glaciers, Moraines, Glacier oscillation, Lithology, Pollen, Paleoecology, Ecosystems.

35-3336
Satellite system for recording radio signals from dynamic processes in the lithosphere, at the earth surface, and in the atmosphere. {O sputnikovoĭ sisteme registratsii radiosignalov ot dinamicheskikh protsessov v litosfere, u zemnoĭ poverkhnosti i v atmosfere},
Berri, B.L., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedeniĭ. Geologiia i razvedka*, Mar. 1981, No.3, p.108-113, In Russian. 11 refs.
Spacecraft, Surveys, Radio echo soundings, Avalanches, Glacier surges, Glacier oscillation, Snowstorms.

35-3337
Possibility of artificial strengthening of clay soils. {O vozmozhnosti iskusstvennogo povysheniia prochnosti glinistogo grunta},
Zhikhovich, V.V., *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedeniĭ. Stroitel'stvo i arkhitektura*, 1981, No.2, p.7-11, In Russian.
Clay soils, Soil stabilization, Earth dams, Slope stability.

35-3338
Influence of former loading on frost resistance of butt-welded joints. {Issledovanie vliianiia predystorii nagruzheniia na khladostoĭkost' svarnykh soedineniĭ vstyk},
Sil'vestrov, A.V., et al, *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedeniĭ. Stroitel'stvo i arkhitektura*, 1981, No.2, p.24-26, In Russian. 5 refs.
Erokhin, K.A.
Steel structures, Welding, Joints (junctions), Brittleness, Frost resistance.

35-3339
Preparation of permafrost bases for earth-rock-fill dams, when the permafrost beneath streams is cut by taliks. {Podgotovka mnogoletnemerzlogo osnovaniia kamenno-zemlianoĭ plotiny, prorezannogo podrusloym talikom},
Myznikov, IU.N., et al, *Energeticheskoe stroitel'stvo*, Apr. 1981, No.4, p.47-53, In Russian.
Poldomasov, B.E.
Hydraulic structures, Earth dams, Permafrost bases, Earth fills, Rock fills, Permafrost beneath rivers, Permafrost hydrology, Frozen fines, Taliks, Design.

35-3340
Thermal regime of open pumps in the North. {Teplovoĭ rezhim otkrytoĭ NPS na Severe},
Kirillov, S.A., et al, *Neftepromyslovoe stroitel'stvo*, 1981, No.4, p.7-10, In Russian.
Shomesov, M.E.
Pumps, Thermal insulation, Petroleum industry, Cold weather operation.

35-3341
Rig foundations for deep drilling in the North. {Osnovaniia dlia ustanovok glubokogo bureniia na Severe},
Belotserkovskaia, G.V., *Neftepromyslovoe stroitel'stvo*, 1981, No.4, p.12-13, In Russian. 2 refs.
Drilling, Foundations, Piles, Settlement (structural), Petroleum industry, Permafrost beneath structures.

35-3342
Developing means of transporting super-blocks. {Razrabotka sredstv dlia transportirovaniia superblokov},
Rozhkov, S.V., et al, *Stroitel'stvo truboprovodov*, Apr 1981, No.4, p.11-12, In Russian.
Vysotskiĭ, V.IU., Kurchitser, M.I.
Modular construction, Transportation, Petroleum industry, Sleds.

35-3343
Industrial design of pile foundations of oil-pumping assemblies. {Industrial'nye konstruktsii svaĭnykh fundamentov pod neftenerekachivaiushchie agregaty},
Chizhevskiĭ, M.V., *Stroitel'stvo truboprovodov*, Apr. 1981, No.4, p.14-15, In Russian.
Pumps, Foundations, Piles, Permafrost beneath structures, Design, Petroleum industry, USSR—Tyumen'.

35-3344
Improving the system of cargo transportation on winter roads. {Sovershenstvovanie sistemy upravleniia gruzoperevozkami na avtozimnikakh},
Dmitrievskiĭ, V.A., *Stroitel'stvo truboprovodov*, Apr. 1981, No.4, p.15, In Russian.
Transportation, Snow roads, Ice roads, Petroleum industry.

35-3345
Economic effectiveness of pipe transportation by the Northern Sea Route. {Ekonomicheskaia effektivnost transportirovki trub Severnym morskim putem},
Agapkin, V.M., et al, *Stroitel'stvo truboprovodov*, Apr. 1981, No.4, p.16-17, In Russian.
Transportation, Ice navigation, Pipes (tubes), Petroleum industry, Pipelines, Arctic Ocean.

35-3346
Organizing the production of improved pipe-laying equipment. {Naladit' vypusk usovershenstvovannykh truboukladchikov},
Karpunichev, B.E., *Stroitel'stvo truboprovodov*, Apr. 1981, No.4, p.35, In Russian.
Pipe laying, Petroleum industry, Construction equipment, Pipelines.

35-3347
Heat Transfer—San Diego, 1979.
National Heat Transfer Conference, 18th, San Diego, California, Aug. 5-8, 1979, *AIChE Symposium series*, 1979, 75(189), 315p., Refs. passim. For selected papers see 35-3348 through 35-3357.
Lyczkowski, R.W., ed.
Freezing, Melting, Heat transfer, Liquid solid interfaces, Phase transformations, Viscosity, Fluid flow, Mathematical models, Experimentation.

35-3348
Crust behavior in simultaneous melting on a submerged flat plate.
Ganguli, A., et al, *AIChE Symposium series*, 1979, 75(189), p.40-53, 7 refs.
Bankoff, S.G.
Freezing, Ice melting, Ice growth, Laminar flow, Plates, Liquid solid interfaces, Phase transformations, Temperature effects, Mathematical models, Experimentation.

35-3349
Forced convection melting heat transfer in a tube for a two component system.
Lee, D.O., et al, *AIChE Symposium series*, 1979, 75(189), p.55-68, 27 refs.
Eisenhawer, S.W., Corradini, M.L., Ostensen, R.W.
Heat transfer, Pipes (tubes), Ice melting, Convection, Water flow, Fluid flow, Mathematical models, Experimentation.

35-3350
Stefan-like problems in finite geometry.
El-Genk, M.S., et al, *AIChE Symposium series*, 1979, 75(189), p.69-80, 30 refs.
Cronenberg, A.W.
Freezing, Ice melting, Ice growth, Stefan problem, Boundary layer, Heat balance, Plates, Fluid flow, Thermal conductivity, Phase transformations.

35-3351
Morphology of ice structure in a pipe at or near transition Reynolds numbers.
Gilpin, R.R., *AIChE Symposium series*, 1979, 75(189), p.89-94, 10 refs.
Pipeline freezing, Ice structure, Pipes (tubes), Water flow, Heat transfer, Laminar flow, Viscosity, Ice growth.

35-3352
Penetration of a freezing liquid into an annular channel.
Kuzay, T.M., et al, *AIChE Symposium series*, 1979, 75(189), p.95-102, 17 refs.
Epstein, M.
Freezing, Channels (waterways), Penetration, Turbulent flow, Liquids, Velocity, Time factor, Density, Viscosity, Mathematical models.

35-3353
Heat transfer during solidification around a cooled horizontal cylinder.
Bathelt, A.G., et al, *AIChE Symposium series*, 1979, 75(189), p.103-111, 19 refs. For same paper from a different source see 35-2238.
Van Buren, P.D., Viskanta, R.
Ice melting, Heat transfer, Freezing, Pipes (tubes), Solid phases, Liquid solid interfaces, Boundary layer, Convection, Mathematical models, Phase transformations.

35-3354
Investigation of a two-phase, moving boundary system, with convection at the solid-liquid interface.
Nansteel, M.W., et al, *AIChE Symposium series*, 19 9, 75(189), p.112-119, 15 refs.
Wolgemuth, C.H.
Liquid solid interfaces, Convection, Heat transfer, Phase transformations, Boundary layer, Ice growth, Turbulent flow, Solid phases.

35-3355
Application of a variable-time-step finite-difference method for the one-dimensional melting problem including the effect of subcooling.
Yuen, W.W., et al, *AIChE Symposium series*, 1979, 75(189), p.120-126, 10 refs.
Kleinman, A.M.
Liquid cooling, Heat transfer, Melting, Liquid solid interfaces, Ice formation, Mathematical models, Stefan problem.

35-3356
Experimental study of the thermal performance of a phase change material dispersed in a stone-like matrix.
Godfrey, R.D., et al, *AIChE Symposium series*, 1979, 75(189), p.127-133, 15 refs.
Velkoff, H.R.
Phase transformations, Freezing, Melting, Thermal conductivity, Liquid solid interfaces, Concretes, Convection, Experimentation, Waxes.

35-3357
Surface ablation by melting or sublimation on a submerged rotating disc.
Condiff, D.W., et al, *AIChE Symposium series*, 1979, 75(189), p.134-147, 4 refs.
Hauser, G.M.
Melting, Sublimation, Ablation, Freezing, Liquid solid interfaces, Heat transfer, Phase transformations, Viscosity, Ice melting, Mathematical models, Plates.

35-3358
Several reasons for failure of field welded oil pipeline.
Northern development, Winter 1980-81, 12(5), p 8-9
Welding, Pipes (tubes), Maintenance, Cold weather performance, Temperature effects.

35-3359
Cook Inlet environment; a background study of available knowledge.
Evans, C.D., et al, Anchorage, Alaska, University, Aug. 1972, 136p., 10 refs.
Natural resources, Environmental impact, Petroleum industry, Offshore drilling, Ice conditions, Sea ice, Ice navigation, Oceanographic surveys, Marine biology, United States—Alaska—Cook Inlet.

35-3360
Bibliography of the environmental and engineering studies on the Arctic coast and Beaufort and Chukchi Seas.
Arctic Environmental Information and Data Center, P.O. NPASU-77-750, Anchorage, Alaska, University, July 1977, 11p.
Bibliographies, Environments, Engineering, Offshore drilling, Permafrost, Shores, Sea ice, Oceanography, Marine biology, Beaufort Sea, Chukchi Sea.

35-3361
Icebreaking procedures on the upper Chesapeake Bay.
Gamp, H.W., *Mariners weather log*, Mar.-Apr. 1981, 25(2), p.71-78
Sea ice, Ice breaking, Icebreakers, Ice navigation, United States—Chesapeake Bay.

35-3362
Aeromagnetic and radio-echo ice-sounding measurements over the Dufek intrusion, Antarctica.
Behrendt, J.C., et al, *Journal of geophysical research*, Apr. 10, 1981, 86(B4), p.3014-3020, 16 refs.
Drewry, D.J., Jankowski, E., Grim, M.S.
Radio echo soundings, Ice cover, Rock magnetism, Geologic structures.
A combined aeromagnetic and radio echo ice-sounding survey (4200 km of traverse) made in 1978 over the Dufek layered mafic intrusion of Jurassic age suggests a minimum area of about 50,000 sq km, making it comparable in size with the Bushveld Complex of Africa. Comparisons of the magnetic and subglacial topographic profiles illustrate the usefulness of this combination of methods in studying bedrock geology beneath ice-covered areas. Rocks are exposed in only 3% of the inferred area of the intrusion. Magnetic anomalies measured a few hundred meters above outcrops of the intrusion range in peak-to-trough amplitude from about 50 nT over the lowermost exposed portion of the section in the Dufek Massif to about 3600 nT over the uppermost part of the section in the Forrestal Range. Theoretical magnetic anomalies, computed from models based on the subice topography fitted to the highest-amplitude observed magnetic anomalies, required normal and reversed magnetizations ranging from 0001 to 01 emu/cu cm having directions and magnetizations consistent with measurements previously made on oriented samples. This result is interpreted as indicating that the Dufek intrusion cooled through the Curie isotherm during one or more reversals of the earth's magnetic field. (Auth.)

35-3363
Did ice streams carve martian outflow channels.
Lucchitta, B.K., et al, *Nature*, Apr. 30, 1981, 290(5809), p.759-763, 20 refs.
Anderson, D.M., Shoji, H.
Ice erosion, Ice creep, Extraterrestrial ice, Mars (planet).
Outflow channels on Mars are long sinuous linear depressions that occur mostly within 30 deg of the equator. Outflow channels resemble terrestrial stream beds, and their origin has generally been attributed to water in catastrophic floods or mudflows. The authors examine the problem of channel origin from the perspective of erosional characteristics and the resultant landforms created by former and present-day ice streams and glaciers on Earth. From morphologic comparisons an ice-stream origin seems well suited to explain the occurrences and form of the outflow channels on Mars, and in contrast with the hydraulic hypothesis, ice streams and ice sheets produce terrestrial features of the same scale as those observed on Mars. Similarities between ice features on Mars and in Antarctica are emphasized throughout in text and figure. (Auth. mod.)

35-3364
Effect of irregular fluctuations in antarctic precipitation on global sea level.
Oerlemans, J., *Nature*, Apr. 30, 1981, 290(5809), p.770-772, 9 refs.
Snow accumulation, Climatic changes, Ice volume, Sea level, Ice models.
Attempts to monitor climatic change by measuring global sea level are complicated by random fluctuations of the ice volume in the major ice sheets, themselves the consequence of random variations in the ice accumulation rate. Precipitation rates are highly variable, and this also applies to Antarctica, which stores most of the continental ice mass. By means of a simple model for ice flow in the Antarctic, together with proxy data on precipitation variability derived from ice cores, it is shown that long-term sea-level variations with a standard deviation of roughly 5 cm are to be expected on this account. This 'climatic noise' is comparable in magnitude with many of the secular effects now being sought. (Auth. mod.)

35-3365
Paleoclimates north and south.
Salinger, M.J., *Nature*, May 14, 1981, 291(5811), p.106-107, 2 refs.
Paleoclimatology, Climatic changes, Meetings.
Papers presented at the first CLIMANZ (Climatic Change of Australia and New Zealand) conference are reviewed. CLIMANZ meetings aim to bring together groups trying to reconstruct Late Quaternary climates in Australia and New Zealand. Results reported in this conference are compared with earlier results from the 10th INQUA Congress in 1977 and with CLIMAP data. Cooling and warming periods are reported along with periods of windiness and sand dune activity, marine temperature changes, changes in the Southern Oscillation, upwelling, and changes in forest cover. Sub-antarctic data are included in some of the papers reviewed.

35-3366
Recent glacier variations and volcanic eruptions.
Porter, S.C., *Nature*, May 14, 1981, 291(5811), p.139-142, 72 refs.
Glacier oscillation, Volcanic ash, Ice cores.
The injection of volcanic dust and gases into the atmosphere during major eruptions has been advanced to explain short-term variations of climate. A calculated global cooling of 1 K during episodes of intense volcanic activity could lead to a snowline depression sufficient to cause glacier advances equivalent to those of the last several centuries. The hypothesis would therefore be strengthened if a close relationship could be demonstrated between global volcanicity and the pattern of recent glacier variations. Glacier activity in the Northern Hemisphere during much of the past 100 yr shows a lack of synchrony with that in the Southern Hemisphere, but in each hemisphere the sequence of glacier variations matches the acidity recorded in polar ice cores and the frequency of volcanic eruptions in successive latitude belts. This suggests that glaciers fluctuate in response to atmospheric build-up of volcanic aerosols produced during large eruptions and that explosive volcanism may therefore be a major factor in modulating climate on the decadal scale. Data from antarctic ice cores, glaciers, and volcanic activity are used in these comparisons. (Auth. mod.)

35-3367
Glaciation, erosion and uplift over part of East Antarctica.
Wellman, P., et al, *Nature*, May 14, 1981, 291(5811), p.142-144, 20 refs.
Tingey, R.J.
Glacial erosion, Isostasy, Antarctica—East Antarctica.
Isostatic uplift during glaciation and caused by glacial erosion is not well documented because preglacial landscapes, which provide a datum against which glacial erosion and related uplift is measured, are generally either destroyed by glaciation or not recognized. Remnants of such a preglacial land surface are exposed in the Prince Charles Mountains of East Antarctica. We now report that the amount of glacial erosion here is 1.5 km, measured by the difference in level between the preglacial land surface and the present mean (mostly subglacial) rock surface. The isostatic uplift caused by this erosion is about 0.8 km. Both amounts are thought to be well above average for East Antarctica and glaciated areas in general because the region is traversed by East Antarctica's largest outlet glacier system, parts of which are believed to surge periodically. (Auth.)

35-3368
Short-term fluctuations in heavy metal concentrations in antarctic snow.
Landy, M.P., et al, *Nature*, May 14, 1981, 291(5811), p.144-146, 15 refs.
Peel, D.A.
Snow stratigraphy, Impurities, Ice cores, Dust, Metals, Antarctica—Antarctic Peninsula.
Heavy metal variations in polar ice cores may reflect changes in global airborne pollution. Reported profiles from Antarctica and Greenland have shown a much greater variability than can be reasonably accounted for by annual variations. We now report data from a finely resolved sample sequence from a remote plateau region of the Antarctic Peninsula. Variations of similar magnitude to those reported for longer time series occur also on the scale of seasonal changes and even of single snowfalls; these must be controlled by meteorological processes. We conclude that changes in large-scale transport processes and depositional mechanisms on longer time scales may have as important a role as emission rates in generating the concentration profiles observed in deeper ice cores. (Auth. mod.)

35-3369
Mission to Antarctica.
Lorius, C., et al, *CNRS research*, 1979, No.10, p.26-34, 13 refs.
Donnou, D.
Ice cores, Ice drills, Drill core analysis, Climatic changes, Impurities.
The development of equipment for ice core drilling in Antarctica is reviewed, emphasizing electrochemical and thermal techniques. The Dome C drilling operation is described with regard to site selection, site runway preparation, supplying the camp, and the drilling results in terms of core recovery. Details of core analysis are given: chemical components of the samples, dating the samples, determining the nature and extent of polluting agents in the samples, and developing a climatic sequence and variations over the past several thousand years.

35-3370
Field-controlled ionic charging of ice crystals.
Richards, W.G., et al, *Journal of geophysical research*, Apr. 20, 1981, 86(C4), p.3199-3202, 14 refs.
Macafee, A.W., Iribarne, J.V.
Ice crystal structure, Electric charge, Ionization, Ice models, Cloud physics.

35-3371
Mechanism for the formation of large icebergs.
Holdsworth, G., et al, *Journal of geophysical research*, Apr. 20, 1981, 86(C4), p.3210-3222, 32 refs.
Glynn, J.E.
Icebergs, Ice mechanics, Glacier tongues, Calving, Antarctica—Erebus Glacier Tongue.
Several ice tongues are known to exhibit a quasi-cyclic pattern of calving and subsequent regrowth. A mechanism that would seem to explain this type of calving behavior is based on the vibrational characteristics of the system of a buoyant ice plate floating in shallow water. Ocean wave energy, responsible for the motion, is intercepted by the glacier, either directly from open ocean or after transmission through, and subsequent filtering by, sea ice. The glacier also acts as a wave filter, with filtering characteristics depending on the ice thickness. When a dominant frequency occurring in the incident wave spectrum coincides with one of the natural frequencies of the glacier, then a resonant motion will occur. For relatively high modes of oscillation, low level, but sustained cyclic bending stresses may lead to crack propagation and subsequent fatigue failure in the ice. The contribution of other mechanisms which induce tensile stresses in the ice are considered to be very important in an overall view of the calving problem, and some of these mechanisms are discussed in relation to the vibration mechanism. It is possible to view the proposed vibration mechanism as a trigger which raises the resultant stresses in the ice to the point where fracture will occur. (Auth.)

35-3372
Monitoring winter sea ice dynamics in the Canadian Arctic with NOAA-TIR images.
Dey, B., *Journal of geophysical research*, Apr 20, 1981, 86(C4), p.3223-3235, 22 refs.
Remote sensing, Spaceborne photography, Sea ice distribution, Canada—Northwest Territories.

35-3373
Tundra ecosystems: a comparative analysis.
Bliss, L.C., ed, International biological programme, No.25, Cambridge University Press, 1981, 813p., Table of contents in English, French, Russian and Spanish. Refs. passim. For selected papers see 35-2705, 35-3374 through 35-3403, or B-24866 and B-24867.
Heal, O.W., ed, Moore, J.J., ed.
Tundra, Ecosystems, Biomass, Animals, Soil microbiology, Environmental impact, Vegetation.

35-3374
North American and Scandinavian tundras and polar deserts.
Bliss, L.C., Tundra ecosystems, a comparative analysis. Edited by L.C. Bliss, O.W. Heal and J.J. Moore. International biological programme, No.25, Cambridge University Press, 1981, p.8-24.
Tundra, Vegetation, Biomass, Plants (botany), Ecosystems, Deserts.

35-3375
Geobotanical division of the Soviet Arctic.
Andreev, V.N., et al, Tundra ecosystems, a comparative analysis. Edited by L.C. Bliss, O.W. Heal and J.J. Moore. International biological programme, No.25, Cambridge University Press, 1981, p.25-34.
Aleksandrova, V.D.
Geobotanical interpretation, Tundra, Ecosystems, Distribution.

35-3376
Multivariate comparisons of IBP Tundra Biome site characteristics.
French, D.D., Tundra ecosystems, a comparative analysis. Edited by L.C. Bliss, O.W. Heal and J.J. Moore. International biological programme, No.25, Cambridge University Press, 1981, p.47-75, 3 refs.
Tundra, Ecology, Vegetation, Soils, Ecosystems, Climatic factors, Classifications.

35-3377
Abiotic components; introduction.
Brown, J., MP 1432, Tundra ecosystems: a comparative analysis Edited by L C Bliss, O.W Heal and J.J. Moore. International biological programme, No.25, Cambridge University Press, 1981, p 79
Ecosystems, Hydrology, Climatic factors, Soils, Site surveys.

35-3378
Tundra climates.
Barry, R.G., et al, Tundra ecosystems: a comparative analysis. Edited by L.C. Bliss, O.W. Heal and J.J. Moore. International biological programme, No.25, Cambridge University Press, 1981, p.81-114, Refs. p.111-114.
Courtin, G.M., Labine, C.
Tundra, Climate, Hydrology.

35-3379
Hydrology of northern tundra.
Rydén, B.E., Tundra ecosystems: a comparative analysis Edited by L.C. Bliss, O.W. Heal and J.J. Moore. International biological programme, No.25, Cambridge University Press, 1981, p.115-137, Refs. p.134-137.
Tundra, Permafrost hydrology, Ecosystems, Climatic factors, Water reserves, Soil water.

35-3380
Primary production of tundra.
Wielgolaski, F.E., et al, Tundra ecosystems: a comparative analysis. Edited by L.C. Bliss, O.W. Heal and J.J. Moore. International biological programme, No.25, Cambridge University Press, 1981, p.187-225, Refs. p.220-225.
Bliss, L.C., Svoboda, J., Doyle, G.
Tundra, Biomass, Plants (botany), Growth.
A comparison of the plant communities from Arctic, sub-Arctic, alpine, sub-Antarctic and Antarctic tundras is presented. The communities classified as Antarctic tundras range from dry grasslands with a total plant production of 840 to 1000 g/sq m to small grass turfs on Signy Island (475 g/sq m) and tow moss communities with 480 to 670 g/sq m annual net production. Compared with those of the Arctic, these levels of production are exceptionally high and well illustrate the difficulties in making biological comparisons between polar regions. Woody species and mosses, as in the Arctic, are important in two of the grassland communities

35-3381
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35-3442
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Permafrost thermal properties, Remote sensing, Naleds, Ice cover thickness, Periglacial processes, Ice electrical properties, LANDSAT, Tundra, Fires, Ice lenses, Ice wedges.

35-3443
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Kong, J.A.
Snow density, Snow composition, Snow cover structure, Ice density, Ice composition, Ice structure, Remote sensing, Microwaves, Grain size.

35-3444
Mean dyadic Green's function for remote sensing of a two-layer random medium.
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Kong, J.A.
Snow surveys, Ice surveys, Vegetation, Remote sensing, Microwaves, Analysis (mathematics), Boundary layer.

35-3445
Proceedings, Vol.3.
Offshore Technology Conference, 13th, Houston, Texas, May 4-7, 1981, 1981, 485p., Refs. passim For selected papers see 35-3446 through 35-3454.
Offshore structures, Sea ice, Ice conditions, Ice loads, Offshore drilling, Artificial islands, Pipe laying, Marine geology.

35-3446
Controlling iceberg roll/stability during towing around drillships.
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Lewis, J.C., Dinn, G.J., Learning, F.R.
Icebergs, Ice removal, Offshore drilling, Ships, Protection, Stability, Towing.

35-3447
Iceberg detection for Canadian frontier production.
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Benedict, C.P.
Icebergs, Ice detection, Protection, Ice navigation, Offshore drilling, Ice forecasting, Infrared equipment, Acoustic measurement.

35-3448
Investigation of the acoustic emission and deformation response of finite ice plates.
Xirouchakis, P.C., et al, MP 1436, Offshore Technology Conference, 13th, Houston, Texas, May 4-7 1981. Proceedings, Vol.3, 1981, p.123-133, 34 refs.
St. Lawrence, W.
Ice cracks, Ice elasticity, Plates, Acoustic measurement, Viscoelasticity, Cracking (fracturing), Ice crystals, Flexural strength.
A procedure is described for monitoring the microfracturing of ice plates subjected to constant loads Sample time records of fresh water ice plate deflections as well as corresponding total acoustic emission activities are presented The linear elastic as well as viscoelastic response for a simply supported rectangular ice plate is given In the present investigation acoustic emission methods are used to study the microfracturing activity in polycrystalline ice subjected to flexural loads The relationship between acoustic emissions and the time dependent inelastic flexural deformation in ice is studied Furthermore, the influence of the magnitude of the applied load and the rate of deformation on cracking activity is explored

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Design and construction of sea ice roads in the Alaskan Beaufort Sea.
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Walden, J.T.
Sea ice, Cold weather construction, Floating ice, Ice surface, Road maintenance, Beaufort Sea.

35-3450
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Litton, R.W., Reimer, R.B.
Ice loads, Ice pressure, Impact strength, Walls, Concrete structures, Concrete strength, Flexural strength, Shear stress, Cracking (fracturing).

35-3451
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Potter, R.E., Goff, R.D.
Artificial islands, Construction materials, Gravel, Slope protection, Offshore drilling, Ice conditions, Sea ice, Maintenance, Design.

35-3452
Steel production structure for the Alaskan Beaufort Sea.
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Bhula, D.N.
Offshore structures, Steel structures, Ice pressure, Ice loads, Ocean waves, Temperature variations, Temperature effects, Design.

35-3453
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Offshore structures, Artificial islands, Protection, Beaches, Slope orientation, Erosion, Ocean waves, Ocean currents, Storms, Forecasting.

35-3454
Ice force prediction using a limited driving force approach.
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Kreider, J.R.
Ice loads, Ocean waves, Ice pressure, Offshore structures, Loads (forces), Countermeasures, Forecasting, Wind factors, Ice conditions.

35-3455
Proceedings, Vol.4.
Offshore Technology Conference, 13th, Houston, Texas, May 4-7, 1981, 1981, 514p., Refs. passim For selected paper see 35-3456.
Marine geology, Offshore structures, Wind pressure, Ocean waves, Ocean currents, Loads (forces), Natural resources, Offshore drilling.

35-3456
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Hampton, M.A., et al, Offshore Technology Conference, 13th, Houston, Texas, May 4-7, 1981. Proceedings, Vol.4., 1981, p.19-34, 26 refs.
Winters, W.J.
Marine biology, Bottom sediment, Ocean bottom, Gas inclusions, United States.

35-3457
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Urban planning, Building codes, Landscape types, Standards

35-3458
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Permafrost distribution, Permafrost structure, Geocryology, Climatic factors, Permafrost origin, Ground ice, Permafrost transformation.

35-3459
Nomenclatural changes in the tundra flora of the Chukotskiy Peninsula. (Nomenklaturnye izmeneniia vo flore Chukotskoĭ tundry).
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Landscape types, Tundra, Vegetation, Terminology, USSR—Chukotskiy Peninsula.

35-3460
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Badu, Iu.B.
Permafrost distribution, Active layer, Thaw depth, Permafrost structure, Ground ice, Permafrost forecasting.

35-3461
Cement, made on a base of piperylene and fluosilicate acid, for strengthening loess and clayey soils. (Ukreplenie lessovykh i glinistykh gruntov kompleksnym viazhushchim na osnove piperilena i kremneftoristovodorodnoĭ kisloty).
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Khabibullina, E.N.
Soil stabilization, Loess, Clay soils, Cements.

35-3462
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River basins, Snowmelt, Drainage, Snow water equivalent, Runoff, USSR—Angara River.

35-3463
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35-3464
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Permafrost hydrology, Naleds, Forecasting.

35-3465
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35-3466
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35-3467
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Aircraft icing, Helicopters, Military research

35-3468
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35-3469
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Oceanographic surveys, Meteorological data, Sea ice, Salinity, Bering Sea.

35-3470
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Grave, N.A
Meetings, Geocryology, Hydrogeology, Paleoclimatology, Permafrost thermal properties, Frozen rock temperature, Heat balance, Permafrost physics, Cryogenic soils, Soil erosion, Ecology, Environmental protection, Permafrost control.

35-3471
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Sukhov, A.G.
Polygonal topography, Geocryology, Frozen fines, Clays, Thermokarst, USSR—Taz Peninsula.

35-3472
Physical weathering of rocks and microclimate near snow fields of bald mountains in the Lake Baykal and northern Transbaikal areas. (Fizicheskoe vyvetrivanie porod i mikroklimat vozle snezhnikov gol'tsov Pribaĭkal'ia i Severnogo Zabaĭkal'ia).
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Alpine landscapes, Snow fields, Microclimatology, Frozen rocks, Frost weathering.

35-3473
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Steppes, Frost action, Cryogenic soils, Frozen ground, Frost shattering, USSR—Transbaikal.

35-3474
Evaluating the transpiration consumption of plant communities in mountain taiga geosystems. (Otsenka transpiratsionnogo raskhoda rastitel'nymi soobshchestvami gorno-taezhnykh geosistem).
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Antipova, N.D.
Alpine landscapes, Taiga, Plant physiology, Transpiration, Ecosystems, Water balance, Frost resistance.

35-3475
Mathematical model of ice clearance from Lake Baykal. (Matematicheskaia model' ochishcheniia oto l'da ozera Baĭkal).
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Gertsekovich, D.A.
Ice formation, Ice breakup, Ice surveys, Ice forecasting, Mathematical models, USSR—Baykal Lake.

35-3476
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Spaceborne photography, Photointerpretation, Petroleum industry, River diversion.

35-3477
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Environmental protection, Landscape types, Human factors, Soil pollution, Soil chemistry, Baykal Amur railroad.

35-3478
Results of studying thermal balance of landscapes under northern conditions. (Kratkie rezul'taty rezhimnykh teplobalansovykh issledovanii v usloviiakh Severa).
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Landscape types, Thermal regime, Heat balance, Snow cover effect, Permafrost thermal properties, Vegetation factors, Tundra, Forest tundra, Cryogenic soils, Soil air interface, Heat transfer.

35-3479
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Pliusnin, V.M.
Mountain glaciers, Snow line, Alpine landscapes, Taiga, Snow cover distribution, Geocryology, Slope processes, Solifluction, Nivation, Baykal Amur railroad.

35-3480
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Prudnikov, S.M.
Taiga, Landscape types, Forest soils, Classifications.

35-3481
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Forest soils, Taiga, Forest canopy, Radiation balance, Paludification, Evaporation, USSR—Irtysh River.

35-3482
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35-3483
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Petrov, V.
Ships, Winter maintenance, Ship icing, Ice loads, Ice cover thickness, Ice breaking.

35-3484
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Meetings, Power lines, Electric equipment, Transmission lines, Electrical grounding, Permafrost, Electrical insulation.

35-3485
Grounding parameters for electrical installations in the Far North. (O parametrakh zazemlitelei elektroustanovok raĭonov Kraĭnego Severa).
Al'tshuler, E.B., *Elektricheskie stantsii*, Jan. 1981, No.1, p.55-59, In Russian. 10 refs.
Electrical grounding, Electric equipment, Permafrost, Design.

35-3486
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Stanek, W., Victoria, B.C., Canada, Forestry Service, Dec. 1980, 47p., In English with French summary. 21 refs. Maps not received.
Vegetation, Environmental impact, Landscape types, Ecology, Route surveys, Maps, Gas pipelines, Canada—Yukon Territory.

35-3487
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Hansson, H.-C., Lannefors, H.
Atmospheric composition, Chemical composition, Haze, Ice cover, Albedo, Norway—Spitsbergen.

35-3488
Surface meteorological processes in the Antarctic. (Meteorologische Prozesse in der Grundschicht über der Antarktis).
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Ice sheets, Meteorology, Thermal regime, Wind factors, Boundary layer.
The interaction between the antarctic ice sheet and the atmosphere is explained by some selected meteorological processes in the boundary layer. A survey of the energy exchange is followed by a description of the thermal structure and of the wind regime in the boundary layer and a discussion of the relationship between the vertical temperature gradient and the refraction coefficient in the constant flux layer. Questions about the mass balance, the atmospheric electricity and chemistry are also discussed. (Auth.)

35-3489
Satellite observations of the ice edge in coastal areas from Queen Maud Land to the Filchner Ice Shelf. (Satellitenbeobachtung der Seeisgrenze im Küstengebiet "Königin-Maud-Land" bis "Filchner-Schelfeis").
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Remote sensing, Spaceborne photography, Sea ice distribution, Antarctica—Queen Maud Land, Antarctica—Filchner Ice Shelf.
Some examples of NOAA satellite photography of shelf ice conditions from 40E to 70W are shown from APT equipment installed at Novolazarevskaya during the 1975-1977 period. Schematic diagrams depicting the progressive diminution of sea ice from early Nov. 1976 through mid-January 1977 are included

35-3490
Numerical model of ice cover redistribution in summer. (Chislennaia model' pereraspredeleniia ledianogo pokrova v letnii period).
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Gudkovich, Z.M.
Sea ice, Drift, Numerical models, USSR—Kara Sea.

35-3491
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Gudkovich, Z.M.
Sea ice, Ice cover, Pack ice, Ice melting, Polynyas, Ice breaking, Ice floes.

35-3492
Results of applying a numerical method of calculating ice conditions in the Barents Sea during the fall-winter period. (Rezul'taty primeneniia chislennogo metoda dlia rascheta elementov ledovogo rezhima Barentseva moria v osenne-zimnii period).
Moskal', T.N., *Leningrad. Arkticheskiĭ i antarkticheskiĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1977, Vol.346, p.45-54, In Russian. 8 refs.
Sea ice, Ice conditions, Ice forecasting, Ice reporting, Ice formation, Ice edge, Mathematical models, Barents Sea.

35-3493
Using the space-time structure of ice conditions in Arctic seas for long range forecasting. (Ispol'zovanie prostranstvenno-vremennoĭ struktury ledovitosti arkticheskikh morei dlia dolgosrochnogo ee prognozirovaniia).
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Polar regions, Sea ice, Ice conditions, Ice reporting, Ice forecasting, Long range forecasting.

35-3494
Forecasting the dates of ice formation in the Laptev Sea. (O prognoze srokov nachala ledoobrazovaniia v more Laptevykh).
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Ice forecasting, Ice edge, Ice conditions, USSR—Laptev Sea.

35-3495
Forecasting spring ice phenomena in the Anadyr Bay. (Prognoz vesennikh ledovykh iavlenii v Anadyrskom zalive).
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Fast ice, Ice breakup, Sea ice, Ice surface, Ice navigation, Ice forecasting.

35-3496
Long range forecasting of ice conditions in the Anadyr Bay in May. (Metodika dolgosrochnogo prognozirovanna ledovitosti Anadyrskogo zaliva v mae).
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Agubov, I.M.
Ice forecasting, Sea ice, Long range forecasting, Ice navigation, Meteorological factors, Meteorological charts.

35-3497
Peculiarities of formation of considerable glacial anomalies in the East Arctic during the summer of 1975. (Nekotorye osobennosti formirovaniia znachitel'noĭ ledovoĭ anomalii na vostoke Arktiki letom 1975 g.).
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Dmitriev, A.A.
Ice navigation, Sea ice, Drift, Ice breaking, Ice cover thickness, Ice volume, Meteorological factors, Arctic Ocean.

35-3498
Possibilities of using the "method of superposition of solar activity epochs" in long-range ice condition forecasts for the Arctic seas. (Vozmozhnost' ispol'zovaniia "Metoda nalozhenna epokh solnechnoĭ aktivnosti" dlia dolgosrochnogo prognoza ledovitosti arkticheskikh morei).
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Spichkin, V.A.
Arctic Ocean, Polar atmospheres, Ice conditions, Ice forecasting, Solar activity, Ice navigation.

35-3499
Correlations of ice conditions in the eastern and western part of the Severnaya Zemlya area. (Sopriazhennost' ledovykh uslovii v zapadnoĭ i vostochnoĭ chasti Severozemel'skogo raĭona).
Kirillov, A.A., et al, *Leningrad. Arkticheskiĭ i antarkticheskiĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1977, Vol.346, p.94-100, In Russian.
Spichkin, V.A.
Ice conditions, Sea ice, Ice forecasting, Meteorological factors, Meteorological charts, Arctic Ocean, USSR—Severnaya Zemlya, USSR—Laptev Sea, USSR—Kara Sea.

35-3500
Dependence of ice conditions in the Severnaya Zemlya area on large-scale characteristics of the distribution of atmospheric pressure. (Zavisimost' ledovykh uslovii Severozemel'skogo raĭona ot krupnomasshtabnykh kharakteristik raspredeleniia atmosfernogo davleniia).
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Ice conditions, Polar atmospheres, Atmospheric pressure, USSR—Severnaya Zemlya, Arctic Ocean.

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During the first and second seasons of its deployment in the Antarctic region, the new U.S Coast Guard icebreaker, *Polar Sta* experienced longitudinal vibration problems in the center and wing shaft systems while breaking ice To minimize or eliminate vibration, the USCG initiated several investigations, some of which are discussed in this paper One of the items under study concerned the axial stiffness of the shafting systems that is contributed by the thrust bearings, their housings and the foundations on which they rest Aside from model test studies, numerical assessments were made of these stiffnesses using finite element methods and other techniques The results of all the calculations are reviewed in light of the broader objectives of the overall program and recommendations are given for further investigations that will aid in the understanding of icebreaker vibration problems. (Auth)

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Borodavkin, P.P., et al, Moscow, Nedra, 1981, 160p., In Russian with English table of contents enclosed 50 refs.
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Petroleum industry, Transportation, Pipelines, Permafrost beneath structures, Permafrost transformation, Environmental protection, Permafrost control, Water pollution, Air pollution, Soil pollution.

35-3567
Thermal balance of meadow vegetation and the climate of cryogenic flood-plain soils. (Teplovoi balans lugovoi rastitel'nosti i klimat merzlotnykh poimennykh pochv),
Savvinov, D.D., et al, Novosibirsk, Nauka, 1981, 176p., In Russian with English table of contents enclosed. Refs. p.156-159.
Kononov, K.E.
Cryogenic soils, Meadow soils, Permafrost beneath rivers, Permafrost distribution, Permafrost hydrology, Vegetation, Thermal regime, Soil water, Microclimatology, USSR—Yakutia.

35-3568
Saline soils of West Siberia. (Zasolennye pochvy Zapadnoi Sibiri),
Kurachev, V.M., et al, Novosibirsk, Nauka, 1981, 152p., In Russian with English table of contents enclosed. Refs. p.146-151
Riabova, T.N.
Cryogenic soils, Meadow soils, Saline soils, Soil formation, Salting, Permafrost hydrology, Land reclamation, Desalting, Soil chemistry.

35-3569
Glaciology of mountainous regions (snow cover, avalanches). (Gliatsiologiia gornykh oblastei (snezhnyi pokrov, laviny)),
Kanaev, L.A., ed, *Srednеaziatskii regional'nyi nauchno-issledovatel'skii institut. Trudy*, 1980, Vol.78, 144p., In Russian. For individual papers see 35-3570 through 35-3584. Refs. passim.
Drozdovskaia, N.F., ed.
River basins, Mountain glaciers, Glacier alimentation, Snow surveys, Gamma irradiation, Snow cover distribution, Snow water equivalent, Slope processes, Avalanche formation, Avalanche triggering, Avalanche engineering.

35-3570
Information content of snow cover data used in forecasting mountain river runoff in Central Asia. (Ob informativnosti dannykh o snezhnom pokrove dlia prognozov stoka gornykh rek Srednei Azii),
Getker, M.I., et al, *Srednеaziatskii regional'nyi nauchno-issledovatel'skii institut. Trudy*, 1980, Vol.78, p.3-12, In Russian. 5 refs.
Shentsis, I.D.
Snow cover distribution, Snow water equivalent, Runoff, Rivers, Discharge, Forecasting, USSR—Central Asia.

35-3571
Avalanche movement, impact and wind. (Dvizhenie, udar laviny i lavinnye vozdushnye volny),
Moskalev, IU.D., *Srednеaziatskii regional'nyi nauchno-issledovatel'skii institut. Trudy*, 1980, Vol.78, p.13-22, In Russian. 7 refs.
Avalanche mechanics, Impact strength, Avalanche wind, Analysis (mathematics).

35-3572
Methods of calculating total snow transfer in storms. (Metodika rascheta obshchego raskhoda metelevogo perenosa snega),
Kharitonov, G.G., *Srednеaziatskii regional'nyi nauchno-issledovatel'skii institut. Trudy*, 1980, Vol.78, p.23-40, In Russian. 28 refs.
Slope processes, Snow cover distribution, Snowstorms, Snowdrifts, Volume, Flow rate, Analysis (mathematics).

35-3573
Using the propagation peculiarities of wind waves originating from avalanche-triggering explosions. (Ispol'zovanie osobennostei rasprostraneniia vozdushnykh voln voznikaiushchikh pri vzryvakh, dlia obrusheniia lavin),
Morgunov, IU.L., *Srednеaziatskii regional'nyi nauchno-issledovatel'skii institut. Trudy*, 1980, Vol 78, p.41-46, In Russian. 5 refs.
Avalanche triggering, Explosion effects, Wave propagation, Analysis (mathematics).

35-3574
Statistical methods of forecasting and their use in avalanche investigations. (Obzor statisticheskikh metodov prognozirovaniia i ikh ispol'zovaniia v snegolavinnykh issledovaniiakh),
Drozdovskaia, N.F., *Srednеaziatskii regional'nyi nauchno-issledovatel'skii institut. Trudy*, 1980, Vol.78, p.48-63, In Russian. 34 refs.
Avalanche forecasting, Statistical analysis, Avalanche formation, Avalanche triggering, Bibliographies.

35-3575
Calculating parameters of earth-fill cones used in avalanche protection. (K voprosu o zashchite ot lavin s pomoshch'iu nasypnykh gruntovykh konusov i raschete ikh parametrov),
Kanaev, L.A., et al, *Srednеaziatskii regional'nyi nauchno-issledovatel'skii institut. Trudy*, 1980, Vol.78, p 64-73, In Russian. 3 refs.
Morgunov, IU.L., Shchelkunova, N.O.
Protection, Avalanche engineering, Avalanche mechanics, Earth fills, Impact strength, Rock fills, Design.

35-3576
Results of a statistical analysis of conditions of avalanche formation. (Nekotorye rezul'taty statisticheskogo analiza uslovii obrazovaniia lavin),
Chirkova, A.A., *Srednеaziatskii regional'nyi nauchno-issledovatel'skii institut. Trudy*, 1980, Vol 78, p.74-78, In Russian. 5 refs.
Slope processes, Snow accumulation, Snow depth, Avalanche formation, Avalanche triggering, Statistical analysis.

35-3577
Calculating avalanche retardation at the terminal section of the descent path when the snow flows through rows of wedge-shaped braking structures. (O raschete tormozheniia laviny na konechnom uchastke zony tranzita pri prokhozhdenii lavinnym snegom riadov tormoziashchikh sooruzhenii v vide klin'ev),
Bilialov, K.B., *Srednеaziatskii regional'nyi nauchno-issledovatel'skii institut. Trudy*, 1980, Vol.78, p.79-84, In Russian. 2 refs.
Avalanche engineering, Avalanche mechanics, Impact strength, Concrete structures, Reinforced concretes, Snow loads, Analysis (mathematics).

35-3578
Analysis of the structure and strength of snow cover on the northern slope of Zailiyskiy Alatau during winters with light and heavy snow accumulation. (Analiz strukturno-prochnostnykh svoistv snega v maloosnezhnye i malosnezhnye zimy na severnom sklone Zailiskogo Alatau),
Kondrashov, I.V., *Srednеaziatskii regional'nyi nauchno-issledovatel'skii institut Trudy*, 1980, Vol 78, p.85-88, In Russian. 3 refs.
Slope orientation, Snow accumulation, Snow cover structure, Snow strength, Soil temperature, Snow temperature, Snow cover stability, USSR—Zailiyskiy Alatau.

35-3579
Calculating snow cover areas in high altitude zones of mountain basins from the altitude of seasonal snow lines. (Metody rascheta ploshchadi zasnezhennosti vysotnykh zon gornogo basseina po vysote sezonnoi snegovoi granitsy),
Tsarev, B.K., *Srednеaziatskii regional'nyi nauchno-issledovatel'skii institut Trudy*, 1980, Vol 78, p 89-98, In Russian. 18 refs.
Snow line, Altitude, Snow cover distribution, Seasonal variations, Analysis (mathematics).

35-3580
Using linear discriminant functions in evaluating avalanche danger conditions. (Primenenie lineinoi diskriminantnoi funktsii dlia otsenki lavinoopasnykh situatsii),
Maksimov, N.V., et al, *Srednеaziatskii regional'nyi nauchno-issledovatel'skii institut. Trudy*, 1980, Vol.78, p.99-102, In Russian. 12 refs.
Barbat, IU.P.
Avalanche forecasting, Snow surveys, Avalanche formation, Avalanche triggering, Analysis (mathematics).

35-3581
Evaluating snow and precipitation measurements in mountains according to the accuracy criterion of space interpolation. (Opyt otsenki osadkomernoi i snegomernoi seti v gorakh po kriteriiu tochnosti prostranstvennoi interpolatsii),
Shentsis, I.D., *Srednеaziatskii regional'nyi nauchno-issledovatel'skii institut. Trudy*, 1980, Vol.78, p 103-112, In Russian. 6 refs.
Mountains, Precipitation (meteorology), Snow cover distribution, Hydrology, Snow water equivalent, Analysis (mathematics).

35-3582
Dust clouds of firn-ice avalanches of the Tramplinnyi glacier (northwestern Pamirs). [Pylevoe oblako firnovo-ledovoi laviny ledn Tramplinnyi (Severo-Zapadnyi Pamir)].
Kirilluk, I.V., et al. *Sredneaziatskii regional'nyi nauchno-issledovatel'skii institut. Trudy*, 1980, Vol.78, p.113-120. In Russian. 9 refs.
Freifel'd, V.IA.
Avalanche formation, Snow cover, Firn, Ice, Avalanche triggering, Avalanche mechanics, Avalanche wind.

35-3583
Snow cover peculiarities and avalanche activity in the Inyl'chek River basin. [Nekotorye osobennosti snezhnogo pokrova i deiatel'nosti lavin v basseine r. Inyl'chek].
Maksimov, N.V., *Sredneaziatskii regional'nyi nauchno-issledovatel'skii institut. Trudy*, 1980, Vol.78, p.121-126. In Russian. 2 refs.
River basins, Mountain glaciers, Snow cover distribution, Microclimatology, Slope orientation, Glacier alimentation, Slope processes, Avalanches, Topographic effects.

35-3584
Exclusion of the atmospheric background effect and calculation of snow water reserves from aerial gamma-survey data. [Iskliuchenie vliianna fona atmosfery i raschet zapasa vody po dannym gamma-snegomernoi aerosemki].
Moskalev, IU.D., *Sredneaziatskii regional'nyi nauchno-issledovatel'skii institut. Trudy*, 1980, Vol.78, p.127-138. In Russian. 5 refs.
Aerial surveys, Gamma irradiation, Snow surveys, Water reserves, Snow water equivalent.

35-3585
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International Geoscience and Remote Sensing Symposium (IGARSS'81), Washington, D.C., June 8-10, 1981, New York, Institute of Electrical and Electronics Engineers, 1981, p.755-1461, Refs. passim. For selected papers see 35-3586 through 35-3594
Sea ice distribution, Ice sheets, Snow hydrology, Remote sensing, Microwaves, Meetings.

35-3586
Drumlin fields and glaciated mountains: a contrast in geomorphic perception from SEASAT radar images.
Ford, J.P., International Geoscience and Remote Sensing Symposium (IGARSS'81), Washington, D.C., June 8-10, 1981. Digest, Vol.2, New York, Institute of Electrical and Electronics Engineers, 1981, p.864-869, 9 refs.
Mountain glaciers, Geomorphology, Remote sensing, Topographic surveys, Slope orientation.

35-3587
Application of microwave remote sensing for snow and ice properties.
Campbell, W.J., et al, International Geoscience and Remote Sensing Symposium (IGARSS'81), Washington, D.C., June 8-10, 1981. Digest, Vol.2, New York, Institute of Electrical and Electronics Engineers, 1981, p.951-957.
Gudmansen, P.
Snow surveys, Ice surveys, Remote sensing, Microwaves, Sea ice, Ice sheets.

35-3588
Interpretation of monopulse ice radar soundings on two Peruvian glaciers.
Jezek, K.C., et al, International Geoscience and Remote Sensing Symposium (IGARSS'81), Washington, D.C., June 8-10, 1981. Digest, Vol.2, New York, Institute of Electrical and Electronics Engineers, 1981, p.958-973, 20 refs.
Thompson, L.G.
Mountain glaciers, Radar echoes, Sounding, Ice cover thickness, Ice temperature, Glacier beds, Ice electrical properties, Remote sensing, Absorption.

35-3589
Accuracy of operational snow and ice charts.
Kukla, G., et al, International Geoscience and Remote Sensing Symposium (IGARSS'81), Washington, D.C., June 8-10, 1981. Digest, Vol.2, New York, Institute of Electrical and Electronics Engineers, 1981, p.974-987, 27 refs.
Robinson, D.
Snow surveys, Ice surveys, Snow cover distribution, Snow depth, Remote sensing, Charts, Albedo, Pack ice, Accuracy.

35-3590
Microwave radiance of early fall sea ice at 1.55 cm.
Carsey, F.D., et al, International Geoscience and Remote Sensing Symposium (IGARSS'81), Washington, D.C., June 8-10, 1981. Digest, Vol.2, New York, Institute of Electrical and Electronics Engineers, 1981, p.989-994, 13 refs.
Huemmrich, K.F.
Sea ice distribution, Ice conditions, Remote sensing, Radiance, Microwaves, Analysis (mathematics).

35-3591
Ice distribution and winter surface circulation patterns, Kachemak Bay, Alaska.
Gatto, L.W., MP 1442, International Geoscience and Remote Sensing Symposium (IGARSS'81), Washington, D.C., June 8-10, 1981. Digest, Vol.2, New York, Institute of Electrical and Electronics Engineers, 1981, p.995-1001, 6 refs.
Sea ice distribution, Ocean currents, Remote sensing, Wind factors, LANDSAT, Winter, Seasonal variations, United States—Alaska—Kachemak Bay.

35-3592
Satellite laser altimeter for measurement of ice sheet topography.
Bufton, J.L., et al, International Geoscience and Remote Sensing Symposium (IGARSS'81), Washington, D.C., June 8-10, 1981. Digest, Vol.2, New York, Institute of Electrical and Electronics Engineers, 1981, p.1003-1011, 9 refs.
Robinson, J.E., Femiano, M.D., Flatow, F.S.
Ice sheets, Topographic surveys, Lasers, Remote sensing, Altimeters.

35-3593
Ice-sheet dynamics by satellite laser altimetry.
Thomas, R.H., et al, International Geoscience and Remote Sensing Symposium (IGARSS'81), Washington, D.C., June 8-10, 1981. Digest, Vol.2, New York, Institute of Electrical and Electronics Engineers, 1981, p.1012-1022, 16 refs.
Bindschadler, R.A.
Ice sheets, Ice mechanics, Lasers, Ice cover thickness, Glacier mass balance, Altitude, Altimeters.
Major changes in the volume of ice in the continental ice sheets of the Earth have occurred repeatedly. At present it is not known whether the ice sheets of Greenland and Antarctica are growing or shrinking. There is evidence suggesting that rapid ice-sheet changes might be initiated either by internal instability in ice or by external changes (climatic warming). Satellite data on ice dynamics, surface elevation and ice-thickness changes in Greenland and Antarctica are described.

35-3594
Snow hydrology studies using data from the Heat Capacity Mapping Mission.
Barnes, J.C., et al, International Geoscience and Remote Sensing Symposium (IGARSS'81), Washington, D.C., June 8-10, 1981. Digest, Vol.2, New York, Institute of Electrical and Electronics Engineers, 1981, p.1211-1217, 6 refs.
Bowley, C.J., Smallwood, M.D., Willand, J.H.
Snow hydrology, Infrared reconnaissance, Infrared photography.

35-3595
Bioengineering for land reclamation and conservation.
Schiechtl, H., Edmonton, University of Alberta Press, 1980, 404p., Refs. p.385-398.
Land reclamation, Plants (botany), Ecology, Biogeography, Soil stabilization, Snow fences, Avalanche engineering, Slope protection, Revegetation, Environmental protection, Vegetation, Frost protection.

35-3596
Proliferation of ice algae in the Syowa Station area, Antarctica.
Hoshiai, T., *Tokyo, National Institute of Polar Research. Memoirs. Series E, Biology and medical science*, Jan 1981, No.34, p.1-12, 21 refs.
Algae, Colored snow, Cryobiology, Antarctica—Showa Station.
The distribution and seasonal variation of ice algae were investigated in the vicinity of Syowa Station. The plant pigments, chlorophyll-a phaeophytin, were detected from top to bottom of the sea ice. However, proliferation of ice algae occurred most markedly at the bottom of the sea ice, making it brown in autumn and spring. The autumnal outburst of algae was found in the more limited regions covered with newly formed ice rather than in the regions where spring proliferation occurred. The autumnal proliferation of algae also occurred in winter ice as well as in new ice, but algal biomass in old ice was less than in new ice. The annual production of ice algae in the Syowa Station area was assumed as 1.50 to 3.25 kC/sq.m based on the present data of algal biomass. The results show the potential importance of ice algae in the marine ecosystems of the polar regions. (Auth.)

35-3597
Floristic study of ice algae in the sea ice of lagoon, Lake Saroma, Hokkaido, Japan.
Takahashi, E., *Tokyo, National Institute of Polar Research. Memoirs. Series E, Biology and medical science*, Jan 1981, No.34, p.49-56 + 5 plates, 19 refs.
Algae, Lake ice, Colored ice, Cryobiology.

35-3598
POLEX-South data, Part 2. Micrometeorological data at Mizuho Station, Antarctica in 1979.
Wada, M., et al, *Japanese Antarctic Research Expedition. JARE data reports*, Mar. 1981, No.62, 321p., 3 refs.
Yamanouchi, T., Mae, S., Kawaguchi, S., Kusunoki, K.
Snow temperature, Snow thermal properties, Meteorological factors, Antarctica—Mizuho Station.
The Japanese Antarctic Research Expedition (JARE) planned a program, POLEX-South, for the duration from 1979 to 1982. This program is composed of three projects: studies of the radiation budget, air-sea-ice interaction, and atmospheric circulation in the Antarctic. The past year's program was limited mainly to measurements of radiation and micrometeorological observations in the lower boundary layer at Mizuho Station. The present report contains the following data of micro-meteorological observations: air temperature; snow surface temperatures, snow temperature, intensity of drifting snow at 1.5 m above the snow surface; surface atmospheric pressure; wind speed at 30 m, 16 m, 8 m, 4 m, 2 m, 1 m and 0.5 m in height, wind direction at 30 m and 2 m in height, humidity at 1.5 m above the snow surface, and thermal flux in snow at 0.1 m, 0.5 m and 1 m in depth. (Auth. mod.)

35-3599
Glaciological data collected by the Japanese Antarctic Research Expedition from February 1979 to January 1980.
Wada, M., et al, *Japanese Antarctic Research Expedition. JARE data reports*, Mar. 1981, No.63, 43p., 3 refs.
Yamanouchi, T., Mae, S.
Snow accumulation, Ice cover thickness, Radio echo soundings, Antarctica—Mizuho Station, Antarctica—Showa Station.
Glaciological and meteorological research by the 20th Japanese Antarctic Research Expedition from Feb. 1979 to Jan. 1980 was carried out mainly at Mizuho Station. Five round trips between Showa Station and Mizuho Station were made for logistic support, and two trips between Mizuho Station and St. Y100 for construction and inspection of the automatic weather station installed at St. Y100. Radio echo sounding for measurement of ice thickness was carried out in Oct. 1979 and Jan. 1980. The present report contains the following data: net accumulation at Mizuho Station, net accumulation along the Routes S, H, Z, G and Y, surface synoptic observations during oversnow traverses, and results of radio echo sounding. (Auth. mod.)

35-3600
Low temperature properties of polymers.
Perepechko, I.I., Moscow, Mir publishers, 1980, 302p., For Russian original see 31-3568. 394 refs.
Bibliographies, Polymers, Plastics, Construction materials, Frost resistance, Low temperature tests, Laboratory techniques, Measuring instruments, Electrical properties, Physical properties.

35-3601
On the angular variation of solar reflectance of snow.
Choudhury, B.J., et al, *Journal of geophysical research*, Jan. 20, 1981, 86(C1), p.465-472, 35 refs.
Chang, A.T.C.
Snow optics, Solar radiation, Backscattering, Reflectivity, Albedo.

35-3602
H2O frost point detection on Mars.
Ryan, J.A., et al, *Journal of geophysical research*, Jan 20, 1981, 86(C1), p.503-511, 27 refs.
Sharman, R.D.
Frost, Water vapor, Air temperature, Mars (planet), Extraterrestrial ice.

35-3603
Snowpack monitoring in North America and Eurasia using passive microwave satellite data.
Forter, J.L., et al, *U.S. National Aeronautics and Space Administration. Technical memorandum*, [1980], No.80706, 20p., 8 refs.
Snow cover distribution, Snow depth, Microwaves, Remote sensing, Radiometry, Snow temperature, Monitors.

35-3604
Alpine vegetation of the Indian Peaks area, Front Range, Colorado Rocky Mountains.
Komárková, V., Vaduz, West Germany, J. Cramer, 1979, 591p. + figs. + maps, Refs. p.545-591.
Alpine landscapes, Vegetation, Environments, Classifications, Soil water, Forest lines, Mountains, Climatic factors, Slope orientation, United States—Colorado—Indian Peaks.

35-3605
Kennebunk glacial advance: a reappraisal.
Smith, G.W., *Geology*, June 1981, 9(6), p.250-253, 13 refs.
Glacial geology, Glacier oscillation, United States—Maine—Kennebunk.

35-3606
Temperatures within subglacial debris—a gap in our knowledge.
Menzies, J., *Geology*, June 1981, 9(6), p.271-273, 26 refs.
Subglacial observations, Thermal regime, Glacial deposits.

35-3607
Hydrology and hydrogeochemistry of the south fork, Wright Valley, southern Victoria Land, Antarctica.
Harris, H.J.H., Urbana-Champaign University of Illinois, 1981, 341p., Ph.D. thesis. Bibliography p.227-246.
Hydrology, Hydrogeochemistry, Permafrost hydrology, Antarctica—Don Juan Pond.
Complex, dynamic hydrogeochemical systems involving the transport and fractionation of water and solutes occur in the rocks, surficial materials, and surface waters of the south fork of Wright Valley, situated in the ice-free region of Southern Victoria Land, Antarctica. All of these systems have features reflective of the regional polar desert environment, and particularly of the extreme cold and aridity. Groundwater flow systems overlying impermeable frozen ground occur intermittently in soils along the axis of the south fork and sustain small, intermittent ponds. The flow systems transport solutes, effecting the accumulation of salts in topographic lows. Spatial segregation of elements occurs during the translocation of solutes and is facilitated by evaporation and freezing. Relatively insoluble sulfates tend to accumulate in the upper parts both of flow systems and of soil profiles, relatively soluble chlorides in the lower parts. Don Juan Pond is described in some detail with respect to its location, hydrology, chemical composition, and stable isotope content. (Auth. mod.)

35-3608
Results of investigations of the Polish Scientific Spitsbergen Expeditions, 1970-1974, Vol.1. *Wroclaw. Universytet. Acta Universitatis Wratislaviensis.* 1975, No.251, 196p. Refs passim. For selected papers see 35-3609 through 35-3617.
Expeditions, Glacier surveys, Slope processes, Moraines, Geomorphology, Climatic factors, Norway—Spitsbergen.

35-3609
Climate of West Spitsbergen in the light of material obtained from Isfjord Radio and Hornsund.
Baranowski, S., *Wroclaw. Universytet. Acta Universitatis Wratislaviensis.* 1975, No.251, p.21-34, 9 refs.
Climatic changes, Glacier oscillation, Glacier mass balance, Norway—Spitsbergen.

35-3610
Meteorological and hydrological investigations in the Hornsund region made in 1970.
Baranowski, S., et al, *Wroclaw Universytet Acta Universitatis Wratislaviensis*, 1975, No.251, p.35-59, 11 refs.
Glowicki, B.
Glacial hydrology, Meteorological data, Runoff, Glacial ablation, Norway—Spitsbergen.

35-3611
Glaciological investigations and glaciomorphological observations made in 1970 on Werenskiold Glacier and its forefield.
Baranowski, S., *Wroclaw Universytet Acta Universitatis Wratislaviensis*, 1975, No.251, p.69-94, 22 refs.
Glacier mass balance, Geomorphology, Glacier flow, Glacier heat balance, Glacial hydrology, Glacial deposits, Moraines, Glacier ablation, Glacier alimentation, Ice thermal properties.

35-3612
Observations of natural ice-micro-tremors of the Hans Glacier.
Górski, M., *Wroclaw. Universytet. Acta Universitatis Wratislaviensis*, 1975, No.251, p.95-100, 2 refs.
Glacier ice, Icequakes, Seismic surveys.

35-3613
Ablation of ice-moraine ridges and its morphological effects, with glaciers of the Hornsund region as example.
Szponar, A., *Wroclaw Universytet. Acta Universitatis Wratislaviensis*, 1975, No.251, p.101-125, 27 refs.
Glacier ablation, Moraines, Geomorphology, Glacial deposits, Slope processes.

35-3614
Marginal zone of the Arie Glacier.
Szponar, A., *Wroclaw. Universytet. Acta Universitatis Wratislaviensis*, 1975, No.251, p.127-138, 5 refs.
Glacial deposits, Moraines, Periglacial processes, Geomorphology.

35-3615
Snow and firn patches between Hornsund and Werenskiold Glacier
Glowicki, B., *Wroclaw. Universytet. Acta Universitatis Wratislaviensis*, 1975, No.251, p.139-146, 4 refs.
Snow cover distribution, Firn, Landscape types, Glaciers, Climatic factors.

35-3616
Slope cover deposits of selected mountain areas in the Hornsund region, SW Spitsbergen.
Martini, A., *Wroclaw. Universytet. Acta Universitatis Wratislaviensis*, 1975, No.251, p.147-185, 40 refs.
Slope processes, Geomorphology, Frost shattering, Glacial geology, Rock mechanics, Rheology, Talus, Solifluction, Weathering, Mountains.

35-3617
Weathering of beach pebbles in Hornsund.
Martini, A., *Wroclaw. Universytet. Acta Universitatis Wratislaviensis*, 1975, No.251, p.187-193, 7 refs.
Gravel, Frost weathering, Beaches.

35-3618
Results of investigations of the Polish Scientific Spitsbergen Expeditions, 1970-1974, Vol.2. *Wroclaw Universytet Acta Universitatis Wratislaviensis*, 1977, No.387, 138p., Refs. passim. For selected papers see 35-3619 through 35-3625.
Glacier surveys, Geomorphology, Naleds, Slope processes, Expeditions, Norway—Spitsbergen.

35-3619
Periglacial forms produced by shore ice at Hornsund (Spitsbergen).
Jahn, A., *Wroclaw. Universytet. Acta Universitatis Wratislaviensis*, 1977, No.387, p.19-29, 9 refs.
Floating ice, Drift, Ice scoring, Beaches, Polygonal topography, Shore erosion, Bottom topography, Gravity.

35-3620
Results of dating of the fossil tundra in the forefield of Werenskioldbreen.
Baranowski, S., *Wroclaw Universytet Acta Universitatis Wratislaviensis*, 1977, No.387, p.31-36, 13 refs.
Tundra, Radioactive age determination, Fossils.

35-3621
Relief of the marginal zone of the Torell Glacier (Austre Torell) in terms of its recession (SW Spitsbergen).
Karczewski, A., et al, *Wroclaw. Universytet. Acta Universitatis Wratislaviensis*, 1977, No.387, p.37-62, 11 refs.
Wiśniewski, E.
Glacier surfaces, Glacier oscillation, Glacial deposits, Topographic features, Geomorphology, Moraines, Outwash.

35-3622
Sedimentary and geomorphological consequences of the occurrence of naled sheets on the outwash plain of the Gas Glacier, Sörkappland, Spitsbergen.
Cegla, J., et al, *Wroclaw Universytet. Acta Universitatis Wratislaviensis*, 1977, No.387, p.63-84, 23 refs.
Kozarski, S.
Glacial deposits, Naleds, Ice sheets, Outwash, Geomorphology, Sedimentation.

35-3623
Naled type of ice in front of some Spitsbergen glaciers.
Baranowski, S., *Wroclaw Universytet Acta Universitatis Wratislaviensis*, 1977, No.387, p.85-89, 8 refs.
Naleds, Ice sheets, Subglacial drainage, Meltwater, Freezing, Outwash.

35-3624
Debris forms on the Skoddefjellet slope.
Jania, J., *Wroclaw. Universytet Acta Universitatis Wratislaviensis*, 1977, No.387, p.91-117, 15 refs.
Glacial deposits, Moraines, Slope processes, Solifluction, Active layer.

35-3625
Results of investigations into microquakes on the Hans Glacier.
Czajkowski, R., *Wroclaw Universytet. Acta Universitatis Wratislaviensis*, 1977, No.387, p.119-138, 5 refs.
Glacier ice, Icequakes, Glacier flow.

35-3626
Influence of conduction on the transfer function of cold wires at very low frequencies; experimental results. (Influence de la conduction sur la fonction de transfert des fils froids dans les très basses fréquences, résultats expérimentaux).
Lecordier, J.C., et al, *Letters in heat and mass transfer*, Mar.-Apr. 1981, 8(2), p.103-114, In French with English summary. 10 refs.
Petit, C., Paranthoën, P.
Heat transfer, Conduction, Temperature measurement, Very low frequencies, Experimentation, Wire.

35-3627
On unsteady state heat transfer during melting on horizontal tubes with a convective boundary.
Saxena, S., et al, *Letters in heat and mass transfer*, Mar.-Apr. 1981, 8(2), p.155-165, 10 refs.
Subrahmanyam, S., Sarkar, M.K.
Heat transfer, Melting, Pipes (tubes), Convection, Phase transformations, Temperature effects, Analysis (mathematics), Boundary layer.

35-3628
Mobile water phase on ice surfaces.
Kvlividze, V.I., et al, *Surface science*, 1974, Vol.44, p.60-68, 20 refs.
Kiselev, V.F., Kurzaev, A.B., Ushakova, L.A.
Ice surface, Ice water interface, Water films, Dynamic properties, Spectra, Freezing points, Temperature effects, Grain size, Mobility.

35-3629
Runoff from a surface study plot.
Bengtsson, L., et al, *Luleå, Sweden University Research report*, 1979, TULEA No.24, 12p., 7 refs.
Westerström, G.
Runoff, Snowmelt, Snow temperature, Soil temperature, Drainage, Analysis (mathematics), Porous materials.

35-3630
Assault on eternity.
Rose, L.A., Annapolis, Maryland, United States Naval Institute, 1980, 292p., Bibliography p.271-276.
DLC G850 1946 .B9 R67
Expeditions, Military operation, Exploration, Ships, Sea ice.
Following a review of early discovery and exploration in Antarctica and brief sketches of some of the prominent veterans of antarctic service, several major events of Operation Highjump are described: aerial photography and mapping projects over Oates Coast, George V Coast and Adelie Coast and in the regions of the Bellingshausen and Amundsen Seas, the tragedy and heroism resulting from the airplane crash which marked the initial phase of the group working the Bellingshausen Sea area, ship operations in the Ross Sea, including the dangerous and unsuccessful submarine activities, and the obstructing effect of poor weather, often anticipated, but sometimes sudden and unexpected. Also discussed at some length are the inter- and intra-service rivalries, politics involved in mounting the expedition, opposing philosophies of expedition goals, personal egos, from several areas of government, sated or unfulfilled. Highjump as the prototype of massive, government funded military service operated antarctic expeditions, successes and failures of the operation.

35-3631
Potential schemes for offshore Labrador year round production.
Wetzel, V.F., et al, *Offshore Technology Conference Proceedings*, 1980, 12th, Vol.1, p.295-305, 16 refs.
Jozan, M.M.
Petroleum industry, Exploration, Offshore structures, Ice conditions, Sea ice, Offshore drilling, Ice cutting, Artificial islands, Ships.

35-3632
Proceedings, Vol.4.
Offshore Technology Conference, 12th, Houston, Texas, May 5-8, 1980, 1980, 646p., Refs passim. For selected papers see 35-3633 through 35-3638.
Offshore structures, Offshore drilling, Artificial islands, Ice conditions, Hydraulic structures, Ice loads, Subsea permafrost, Meetings.

35-3633
Construction of an artificial drilling island in intermediate water depths in the Beaufort Sea.
Boone, D.J., *Offshore Technology Conference Proceedings*, 1980, 12th, Vol.4, p.187-195, 3 refs.
Artificial islands, Construction, Offshore drilling, Sea ice distribution, Ice conditions, Water waves, Wave propagation, Pipelines, Design, Beaufort Sea.

35-3634
Effect of pile-ups and rubble fields on ice-structure interaction forces.
Bercha, F.G., et al, *Offshore Technology Conference Proceedings*, 1980, 12th, Vol.4, p.297-305, 19 refs.
Potter, R.E., Goss, R.D., Ghonem, G.A.A
Offshore structures, Ice loads, Ice pileup, Artificial islands, Ice mechanics, Ice solid interface, Mathematical models.

35-3635
Model and field experiments for development of ice resistant offshore structures.
Oshima, M., et al, *Offshore Technology Conference. Proceedings*, 1980, 12th, Vol.4, p.307-314, 3 refs.
Narita, H., Yoshima, N., Tabuchi, H
Offshore structures, Ice loads, Strength, Models, Design, Ice cover strength, Conical bodies.

35-3636
Fixed platform providing an integrated deck on a multiple leg ice resistant structure.
Khewer, R.M., et al, *Offshore Technology Conference. Proceedings*, 1980, 12th, Vol.4, p.315-324, 4 refs.
Forbes, G.A.
Offshore structures, Hydraulic structures, Strength, Ice loads, Flexural strength, Subsurface structures, Foundations.

35-3637
Soil and permafrost conditions in the Alaskan Beaufort Sea.
Miller, D.L., et al, *Offshore Technology Conference Proceedings*, 1980, 12th, Vol.4, p.325-338, 33 refs.
Bruggers, D.E.
Subsea permafrost, Geocryology, Permafrost thermal properties, Permafrost thickness, Marine deposits, Ice lenses, Ground ice, Bottom sediment, Cryogenic soils.

35-3638
Special mooring systems using remote controlled quick disconnects for Beaufort Sea drilling operations.
Lasch, J.E., et al, *Offshore Technology Conference. Proceedings*, 1980, 12th, Vol.4, p.339-344, 6 refs.
Pearlman, M.D., Riotte, E.C.
Offshore drilling, Moorings, Anchors, Sea ice distribution, Ice conditions, Equipment.

35-3639
Conquering Alaska's Arctic drilling problems. Pt.2. Drilling procedures.
Moore, S.D., *Petroleum engineer international*, June 1981, 53(7), p.90, 94, 96, 100.
Offshore drilling, Subsea permafrost, Permafrost preservation, Boreholes, Drilling fluids, United States—Alaska—Prudhoe Bay.

35-3640
What is the future of the Northwest Passage. (Quel sera l'avenir du passage du Nord-Ouest?),
Pharand, D., *North/nord*, Fall 1980, 27(3), p.2-7, In French with English summary.
Ice navigation, Water pollution, Icebreakers, Ice breaking, Northwest Passage, Legislation.

35-3641
Analytical method of calculating runoff storage. (Analiticheskii metod rascheta regulirovaniia stoka),
Kiktenko, V.A., et al, Alma-Ata, Nauka, 1980, 200p., In Russian with English table of contents enclosed 119 refs.
Baishev, B.B.
Lakes, Streams, Alimentation, Snowmelt, Runoff forecasting, Flow control, Snow water equivalent, Seasonal variations, Analysis (mathematics), Computer applications.

35-3642
Proceedings.
Symposium on High-Latitude Climate Systems, Nov. 6-9, 1979, *Monthly weather review*, Dec. 1980, 108(12), p.1935-2091, For individual papers see 35-3643 through 35-3653 or F-24912, F-24914, I-24909 through I-24911, and I-24913. Numerous refs.
Meetings, Polar regions, Climate.
The Symposium was held in Boston under the sponsorship of the American Meteorological Society. The meeting focussed on Arctic and Antarctic climate processes with special emphasis on their relationship to weather and climate in extrapolar regions. Specific topics included the diagnostics of large-scale and synoptic circulation systems, boundary interactions involving the atmosphere-ocean-cryosphere interface, and theoretical studies pertaining to the role of high-latitude processes in large-scale climate dynamics (Auth.)

35-3643
Polar processes and world climate (a brief overview).
Goody, R., *Monthly weather review*, Dec. 1980, 108(12), p.1935-1942, 43 refs.
Polar regions, Climate, Ice cover effect, Ice sheets.
This paper presents evidence relating events taking place in polar regions to the world climate. Mechanisms involving sea ice and polar ice sheets are reviewed and two speculative theories of the Pleistocene Ice Ages are described. (Auth.)

35-3644
Method for coincidentally determining soil hydraulic conductivity and moisture retention characteristics.
Ingersoll, J., *U.S. Army Cold Regions Research and Engineering Laboratory*, Mar. 1981, SR 81-2, 11p., ADA-099 136, 3 refs.
Soil water, Water retention, Permeability, Hydraulics, Conduction, Density (mass/volume), Tensile properties, Glacial deposits, Equipment.
A constant-head permeameter has been modified to include the essential components of a Tempe cell moisture extractor. With this equipment, tests for saturated hydraulic conductivity (permeability), unsaturated hydraulic conductivity and moisture retention characteristics of the soil can be conducted using the same soil sample. The procedure can be used for both absorption and desorption phases. Test results from four different soils (a glacial till, a fine sand, a silt and a coarse sand) are presented. The effects of density on hydraulic conductivity and moisture retention characteristics are shown.

35-3645
Arctic and antarctic climatology of a GLAS general circulation model.
Herman, G.F., et al, *Monthly weather review*, Dec. 1980, 108(12), p.1974-1991, 40 refs.
Johnson, W.T.
Climatology, Atmospheric circulation, Models, Meteorological charts.
The performance of a recent version of the general circulation model used at the Goddard Laboratory for Atmospheric Science is evaluated with particular emphasis on its behavior at high latitudes of the Northern and Southern Hemispheres. Model-generated sea level pressure, 500mb geopotential, and surface air temperature are compared with observed long-term climatologies. Sensible heat, evaporative, and radiative fluxes at the surface, and radiative fluxes at the top of the atmosphere also are compared with observed data. In the Northern Hemisphere the major features that are satisfactorily simulated include the position and intensity of the Aleutian and Icelandic lows in winter, the central Arctic pressure distribution during winter and summer, and the summertime North Atlantic and North Pacific high pressure regimes. The most notable shortcomings of the model include its weak wintertime Asiatic high, and missing meridionality of the 500 mb flow over the North Pacific. The GCM is less successful in simulating the observed climatology of the Southern Hemisphere. The 500 mb circumpolar flow is adequate, but the model does not successfully reproduce the stationary low pressure centers at the surface around the Antarctic continent. (Auth. mod.)

35-3646
Spatial and temporal variations in the south polar surface energy balance.
Weller, G., *Monthly weather review*, Dec. 1980, 108(12), p.2006-2014, 25 refs.
Heat balance, Heat flux, Sea ice distribution, Ice cover thickness.
The surface energy balance in Antarctica is examined by summarizing and comparing field data collected at seven locations in five latitudinal zones, each having different ice surface characteristics which are specified. Satellite records are used to estimate the energy balance of the pack ice zone for which no field data are available. The midwinter energy loss from the ocean to the atmosphere of this zone may be almost an order of magnitude higher than previous estimates, due to a much larger extent of open water as determined from satellite observations. Interannual variations of the energy balance over the continent *appear to be small, as judged from the limited data set, but the* effects of sea ice, the largest year-to-year variable in the energy balance, could not be determined without better satellite-derived information of the sea ice thickness distribution. (Auth.)

35-3647
Eastern Bering Sea ice processes.
Pease, C.H., *Monthly weather review*, Dec. 1980, 108(12), p.2015-2023, 17 refs.
Sea ice distribution, Ice physics, Hydrography, Wind factors, Water temperature, Oceanographic surveys.

35-3648
Wintertime observations of roll clouds over the Bering Sea.
Walter, B.A., *Monthly weather review*, Dec. 1980, 108(12), p.2024-2031, 21 refs.
Cloud cover, Ice cover effect, Air flow, Air temperature, Heat flux.

35-3649
Microwave observation of the Weddell polynya.
Carsey, F.D., *Monthly weather review*, Dec. 1980, 108(12), p.2032-2044, 36 refs.
Polynyas, Sea ice, Drift, Antarctica—Weddell Sea.
Satellite microwave image data from Nimbus 5 of the Weddell Sea are examined for the years 1973-77. During the winters of 1974, 1975 and 1976 a polynya or ice-enclosed open water area is observed. It has an area of 2-300,000 sq km and is observed drifting west at about 1 cm/s in the Weddell Sea ice pack. The long-term and short-term behavior of the polynya margin and the regional ice concentration are interpreted in light of several oceanographic and meteorological theories explaining the circulation relevant to its origin, stability and role. It is concluded that water column stability preconditioning alone is a necessary but not significant condition for the existence of the polynya. (Auth.)

35-3650
Field observations of the Bering Sea ice edge properties during March 1979.
Bauer, J., et al, *Monthly weather review*, Dec. 1980, 108(12), p.2045-2055, 15 refs.
Martin, S.
Sea ice, Ice edge, Ice structure, Ocean waves, Bering Sea.

35-3651
Investigation of the snow adjacent to Dye-2, Greenland.
Ueda, H.T., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, May 1981, SR 81-3, 23p., ADA-099 139, 8 refs.
Goff, M.A., Nielsen, K.G.
Snow strength, Compressive properties, Snow density, Loads (forces), Snow depth, Drill core analysis.
Snow samples from five 50-ft (15.2m) deep holes, augered adjacent to the west side of DEW Line Station Dye 2 in Greenland, were investigated for density and unconfined compressive strength. Forty-two percent of the recovered cores were tested. Ninety-three percent of the samples tested had a length/diameter ratio greater than 2:1. The loading rate was 2 in./min (51 mm/min). Sample end-effects appeared to influence a high percentage of the failures. The heavily disturbed nature of the material is evidenced in the widely scattered values of density and strength with depth. A minimum and maximum strength value of 31 psi (0.21 MPa) and 1065 psi (7.34 MPa) respectively were obtained from a hole located 50 ft (15.2 m) from the structure. Using an approach similar to that used prior to the Dye-3 move in 1976, a safety factor exceeding 6.5 is obtained against a brittle bearing failure based on a maximum footing design load of 2000 lb/sq ft (96 kPa).

35-3652
Role of polar regions in global climate, and a new parametrization of global heat transport.
Lindzen, R.S., et al, *Monthly weather review*, Dec. 1980, 108(12), p.2064-2079, 29 refs.
Farrell, B.
Climate, Polar regions, Ice cover effect, Heat flux.
Such role as polar regions may have in determining global climate obviously depends on the transport of heat between polar regions and other latitudes. The authors review the way such transport affects climate sensitivity and stability within the context of simple energy balance models. They turn to the development of new heat transport parameterizations wherein radiative equilibrium distributions of temperature with latitude are adjusted on the basis of recently noted properties of Hadley cells and baroclinically unstable eddies.

35-3653
Sea ice simulation based on fields generated by the GLAS GCM.
Parkinson, C.L., et al, *Monthly weather review*, Dec. 1980, 108(12), p.2080-2091, 33 refs.
Herman, G.F.
Sea ice distribution, Ice cover thickness, Air temperature, Atmospheric circulation, Models.
A four-month simulation of the thermodynamic portion of the Parkinson-Washington sea ice model was conducted using atmospheric boundary conditions that were obtained from a precomputed seasonal simulation of the Goddard Laboratory for Atmospheric Sciences General Circulation Model (GLAS GCM). The sea ice thickness and distribution were predicted for the 1 January-30 April period based on the GCM-generated fields of solar and infrared radiation, specific humidity and air temperature at the surface, and snow accumulation. The sensible heat and evaporative fluxes at the surface are mutually consistent with the ground temperatures generated by the ice model and the air temperatures generated by the atmospheric model. In general, in the Northern Hemisphere the predicted ice distributions and the wintertime accretion and southward advance of the pack ice are well simulated. The computed ice thickness in the Southern Hemisphere appears reasonable, but the Antarctic melt season is extended, causing ice coverage to be less than observed in late March and April. (Auth. mod.)

35-3654
Sea ice cover and related atmospheric conditions in Arctic Canada during the summer of 1978.
Dey, B., *Monthly weather review*, Dec. 1980, 108(12), p.2092-2097, 17 refs.
Sea ice distribution, Ice openings, Wind factors, Atmospheric pressure.

35-3655
FGGE Arctic data buoy program.
Thorndike, A.S., *Monthly weather review*, Dec. 1980, 108(12), p.2097-2099, 5 refs.
Remote sensing, Sea ice, Drift, Data buoys.

35-3656
Proceedings.
Final SURSAT Ice Workshop Atmospheric Environment Service, Toronto, June 23-27, 1980, Canada. Surveillance Satellite Project, Feb. 1981, 7 sections. Refs. passim.
Ramseier, R.O., ed, Lapp, D.J., ed.
Sea ice distribution, Icebergs, Ice cover thickness, Ice detection, Remote sensing, Microwaves, Backscattering, Meetings, Radar photography, Snow cover effect, Classifications.

35-3657
Research in sea ice mechanics.
National Research Council. Panel on Sea Ice Mechanics, Washington, D.C., National Academy Press, 1981, 80p, 164 refs.
Ice mechanics, Sea ice, Drift, Ice cover strength, Ice structure, Ice solid interface, Ice conditions, Offshore structures, Marine transportation, Petroleum industry.

35-3658
Permafrost engineering: an introduction to northern engineering.
Lunardini, V.J., Ottawa, University, Dept. of Mechanical Engineering, Sep. 1975, 444p., Numerous refs. passim.
Permafrost physics, Frozen ground mechanics, Permafrost thermal properties, Engineering, Cold weather construction, Climatic factors, Geomorphology, Heat transfer, Cold weather survival, Sea ice distribution.

35-3659
Outline of the study of seasonal snow and ice in China.
Maohuan, H., *Seppyo*, Dec 1980, 42(4), p 1-11, 5 refs
Snow cover distribution, Drift, Ice conditions, Forecasting, Protection, Avalanche formation, Snow fences, Mountains, China.

35-3660
Some achievement on mountain glacier researches in China.
Yafeng, S., *Seppyo*, Dec. 1980, 42(4), p.13-26, 19 refs
Mountain glaciers, Glacier mass balance, Snow line, Climatic factors, China, Pakistan.

35-3661
Inclination of young broad-leaved trees caused by snow accretion.
Ozeki, Y., et al, *Seppyo*, Dec 1980, 42(4), p.27-31, In Japanese. 6 refs.
Watanabe, S., Saeki, M.
Trees (plants), Snow accumulation, Snow loads, Damage.

35-3662
Fundamentals of cold regions engineering (Pt.9).
Higashi, A., *Seppyo*, Dec 1980, 42(4), p 33-48, In Japanese 47 refs.
Engineering, Ice crystals, Floating ice, Flexural strength, Bearing strength, Ice plasticity, Ice mechanics, Cold weather construction.

35-3663
First artificial snow crystals (Pt.1).
Sekido, Y., *Seppyo*, Dec. 1980, 42(4), p.49-60, In Japanese. 2 refs.
Artificial snow, Snow crystal structure.

35-3664
Commemorative monument of the birthplace of the first artificial snow crystals.
Higashi, A., *Seppyo*, Dec. 1980, 42(4), p 61-62, In Japanese. 4 refs.
Artificial snow, Snow crystals, Laboratories.

35-3665
Flexural strength of ice grown from chemically impure melts.
Timco, G.W., *Cold regions science and technology*, Apr. 1981, 4(2), p.81-92, 15 refs.
Ice strength, Flexural strength, Impurities, Doped ice, Ice growth, Ice structure, Meltwater.

35-3666
Cantilever beam tests in an ice cover: influence of plate effects at the root.
Svec, O.J., et al, *Cold regions science and technology*, Apr. 1981, 4(2), p.93-101, 11 refs.
Frederking, R.M.W.
Ice cover strength, Flexural strength, Floating ice, Tests, Plates, Cantilever beams.

35-3667
Radiative properties of snow for clear sky solar radiation.
Choudhury, B., *Cold regions science and technology*, Apr. 1981, 4(2), p.103-120, 44 refs.
Grain size, Snow optics, Solar radiation, Albedo, Reflection, Transmission, Snow density, Radiation absorption, Spectra, Analysis (mathematics). Heating.

35-3668
Spectral albedos of an alpine snowpack.
Grenfell, T.C., et al, *Cold regions science and technology*, Apr 1981, 4(2), p.121-127, 21 refs
Perovich, D.K., Ogren, J.A.
Snow optics, Snow cover structure, Albedo, Spectra, Impurities, Grain size.

35-3669
Thermophysical studies of natural and disturbed landscape complexes in the north of the U.S.S.R.
Pavlov, A.V., *Cold regions science and technology*, Apr. 1981, 4(2), p.129-135, 13 refs.
Soil temperature, Permafrost thermal properties, Heat balance, Landscape types, Snow cover effect, Radiation balance, Thermal conductivity, Seasonal variations. Forest land, Evaporation.

35-3670
Some approaches to modeling phase change in freezing soils.
Hromadka, T.V., II, et al, *Cold regions science and technology*, Apr. 1981, 4(2), MP 1437, p.137-145, 11 refs.
Guymon, G.L., Berg, R.L.
Soil freezing, Phase transformations, Thermal regime, Unfrozen water content, Soil water, Mathematical models.
Phase change effects associated with freezing soils dominate the thermal state of the soil regime Furthermore, freezing of soil water influences the soil moisture regime by providing a moisture sink which tends to draw mobile soil moisture to freezing fronts Consequently, it is critical to general purpose models that soil water phase change effects and the interrelated problem of estimating the moisture sink effects (i.e., conversion of liquid water to ice) be accurately modeled The choice of such a model will not only influence the precision of simulated temperatures and water contents in a freezing soil, but will also have a significant impact on computational efficiency A review of several current models that assume unfrozen water content is functionally related to subfreezing temperatures indicates that within a freezing soil the soil water flow model and heat transport model parameters are restricted in spatial gradients according to the spatial gradient of modeled unfrozen water content. A freezing soil model based on the concept of isothermal phase change of soil water is proposed as an alternative approach

35-3671
Cylindrical phase change approximation with effective thermal diffusivity.
Lunardini, V.J., *Cold regions science and technology*, Apr. 1981, 4(2), MP 1438, p.147-154, 13 refs.
Phase transformations, Freeze thaw cycles, Thermal diffusion, Permafrost heat balance, Latent heat, Pipes (tubes), Analysis (mathematics).
No exact, general, solution exists for phase change in a cylindrical geometry In fact, even approximate solutions are rare and limited in applicability The use of the effective thermal diffusivity concept has allowed a closed form approximate solution to be generated for phase change around a circular cylinder in an indefinite medium The effective diffusivity method permits solutions to be found for phase change problems merely by solving the usually linear, zero latent heat problem analogous to the phase change problem Phase change problems are often intractable with the usual mathematical methods The cylindrical formulae given here are shown to be of acceptable accuracy, for most engineering purposes, over a wide range of parameters No other simple, closed form, approximation is known for the cylindrical system Although the accuracy of the effective diffusivity method has been demonstrated for the cylindrical geometry, application to other geometries must be verified

35-3672
What is the temperature change in pressure melting.
Offenbacher, E.L., *Cold regions science and technology*, Apr 1981, 4(2), p.155-156, 5 refs. For article being commented on see 35-822.
Melting points, Pressure, Ice pressure, Water pressure, Ice water interface, Temperature effects, Boundary layer, Thermodynamics.

35-3673
Reply to: a comment on "pressure melting".
Spring, U., *Cold regions science and technology*, Apr. 1981, 4(2), p 157, For article referred to see 35-822. 1 ref.
Pressure, Melting points, Ice pressure, Water pressure, Ice water interface, Phase tramsformations, Temperature effects.

35-3674
Southcentral region of Alaska deep-draft navigation study.
Alaska Consultants, Inc., Jan. 1981, c140p. + 10 appends., 92 refs.
PRC Harris, Inc
Navigation, Transportation, Forecasting, Ports, Ships, Tidal currents, Ice conditions.

35-3675
Bering Sea ice project.
Oceanographic Services, Inc., Aug 1980, 34p, OSI 5109, 6 refs.
Echert, D.C., Reeves, R.C.
Sea ice distribution, Ice detection, Ice conditions, Ice forecasting, Side looking radar, Remote sensing, Research projects, Ice cover thickness, Microwaves, Petroleum industry, Cloud cover, Bering Sea.

35-3676
Paleoclimate model of Northern Hemisphere ice sheets.
Birchfield, G.E., et al, *Quaternary research*, Mar. 1981, 15(2), p.126-142, 33 refs
Weertman, J., Lunde, A.T
Ice sheets, Ice physics, Paleoclimatology, Mass balance, Climatic changes, Spectra, Models.

35-3677
Periglacial wedges and the Late Pleistocene environment of Wyoming's intermontane basins.
Mears, B., Jr., *Quaternary research*, Mar. 1981, 15(2), p 171-198, Refs. p 195-198.
Periglacial processes, Polygonal topography, Wedges, Tundra, Permafrost distribution, Pleistocene, Climatic factors.

35-3678
Continental ice sheets and the planetary radiation budget.
Oerlemans, J., *Quaternary research*, Nov. 1980, 14(3), p.349-359, 22 refs.
Ice sheets, Land ice, Mass balance, Solar radiation, Albedo, Climatic factors, Altitude, Models.

35-3679
New evidence from beneath the western North Atlantic for the depth of glacial erosion in Greenland and North America.
Laine, E.P., *Quaternary research*, Sep. 1980, 14(2), p.188-198, 39 refs.
Glacial erosion, Glaciation, Sediment transport, Marine deposits.

35-3680
Jokulhlaups on Snow River in southcentral Alaska.
Chapman, D.L., *US National Oceanic and Atmospheric Administration NOAA technical memorandum*, Apr. 1981, NWS AR-31, 48p., 8 refs.
River ice, River flow, Glacial hydrology, Glacial lakes, Forecasting, Flooding.

35-3681
Radiocarbon date list 1; Labrador and northern Quebec, Canada.
Short, S.K., comp, *Colorado. University, Boulder. Institute of Arctic and Alpine Research Occasional paper*, 1981, No 36, 33p, Refs. p 31-33
Radioactive age determination, Tundra, Sediments, Glacial lakes, Vegetation, Pollen, Palynology.

35-3682
Potential and developed water-supply sour[illegible] in Alaska.
Dearborn, L.L., *Alaska Geological Society Journal*, 1981, Vol.1, p.1-11, 14 refs
Water supply, Ground water, Lake water, Streams, United States—Alaska.

35-3683
Investigations of possible correlations of vegetation, substrate, and topography in interior Alaska.
Neiland, B.J., Apr. 1975, 61p + 3 appends., Unpublished manuscript. Final report submitted to the Bureau of Land Management, Fairbanks, Alaska, on contract No. 53500-CT-1-355(N). Refs. p.59-61.
Vegetation patterns, Active layer, Slope orientation, Thaw depth, Permafrost, Soil profiles, Soil texture, Soil water.

35-3684
Phase composition of water in the frozen soils of the Vyatka River basin.
Kaliuzhnyĭ, I.L., et al, *Soviet hydrology: selected papers*, 1978, 17(4), p 255-260, 6 refs. For Russian original see 33-3988.
Morozova, N.S., Pavlova, K.K.
Soil freezing, Frost penetration, Soil water migration, Phase transformations, Unfrozen water content.

35-3685
Heavy snowfall and avalanches in the Ukrainian Carpathians in the winter of 1975-76.
Grishchenko, V.F., et al, *Soviet hydrology: selected papers*, 1978, 17(4), p.297-299, 4 refs For Russian original see 34-2052.
Tokmakov, IU.A.
Snowfall, Snow accumulation, Snow density, Avalanche formation, Avalanche triggering, USSR—Carpathian Mountains.

35-3686
Mudflows in the Pamir and Pamir-Alay.
Kemmerikh, A O , *Soviet hydrology selected papers*, 1978, 17(4), p.307-309, 4 refs. For Russian original see 33-1646.
Slope processes, Moraines, Glacier ablation, Meltwater, Mudflows, USSR—Pamirs.

35-3687
Ice-free Cretaceous? Results from climate model simulations.
Barron, E.J., et al, *Science*, May 1, 1981, 212(4494), p.501-508, Numerous refs.
Thompson, S.L., Schneider, S.H.
Paleoclimatology, Climatic changes, Temperature distribution, Heat transfer, Models.
The mechanisms that could explain the warm, equable climate that is believed to have been typical of the mid-Cretaceous (100 million years ago) are quantitatively investigated By performing simulations with a climate model based on zonal energy balance, it is demonstrated that past changes in geography were important in bringing about climatic change. However, the meridional distribution of Cretaceous temperatures cannot be successfully simulated unless additional physical "feedback mechanisms" are included in the model These mechanisms may involve cloud and meridional heat transport changes Paleoclimatologists should reexamine carefully both existing data and their interpretations with regard to reconstruction of Cretaceous tropical and polar surface temperatures Specific references to Antarctica appear occasionally in the text and frequently in the graphs and tables (Auth mod)

35-3688
Folds in firn.
Waag, C.J., *Geological Society of America. Bulletin, Pt.I*, May 1981, 92(5), p.268-273, 12 refs.
Firn, Glacier surfaces, Glacier flow, Ice deformation, Deformation.

35-3689
Description of a method for calculating snow cover evolution. [Darstellung eines Verfahrens zur Berechnung der Schneedeckenentwicklung].
Rachner, M., et al, *Zeitschrift fur Meteorologie*, 1981, 31(2), p.117-123, In German with English summary. 15 refs.
Matthäus, H.
Snow cover structure, Snow depth, Snow water content, Precipitation (meteorology), Air temperature, Diurnal variations, Solar radiation, Models.

35-3690
Depolarization thermocurrents in ice Ih at low temperature.
Pissis, P., et al, *Zeitschrift fur Naturforschung*, Apr 1981, 36a(4), p.321-328, 24 refs.
Boudouris, G.
Ice crystal structure, Ice electrical properties, Polarization (charge separation), Temperature effects, Dielectric properties, Relaxation (mechanics), Low temperature tests.

35-3691
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Gas pipelines, Pipe laying, Cold weather construction, Cost analysis, United States—Alaska.

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Graham, J.M.
Grasses, Growth, Soil stabilization, Gravel, Nutrient cycle, Greenhouses.
Two greenhouse studies were performed with gravel soils to determine the requirements for nitrogen (N), phosphorus (P), and potassium (K) for grass establishment and to assess the establishment performance of 15 types of grasses. The fertilizer study consisted of 30 treatments, each representing a different combination of application rates of N, P, and K. A seed mixture containing 'Nugget' Kentucky bluegrass, Pennlawn red fescue, and annual ryegrass was sown, and the plants were harvested 133 days after sowing Plant leaf and root weights were measured, and soil samples were analyzed for pH, P, K and soluble salts In the grass study, 15 grasses were grown for 76 days All treatments were fertilized at the beginning of the study. Plant establishment was periodically assessed and yields were measured at the end of the study. In the fertilizer study, N and P were shown to be limiting to leaf growth on this soil Applications of P were the most beneficial for root growth Needs for K were less evident, but it was required for maximum leaf growth at the higher application rates of N and P. The greatest yields were recorded when all three elements were applied, while at the lower application rates only N and P were required to promote growth

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35-3702
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35-3705
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Syers, J.K.
Soil chemistry, Waste disposal, Water treatment, Irrigation, Waste treatment
The concentrations of dissolved inorganic phosphate (DIP) in soil solution collected at 0 8 and 1 5 m in soils which had received municipal waste water for 4 and 13 years ranged from 7 3 to 13.9 microgram P/ml In some cases, these concentrations were higher than that in the added waste water Sorption studies indicated that the ability of soils from the control site to remove added P from solution was low Waste water addition caused a substantial decrease in the P sorption capacity of surface soils and a marked change in isotherm shape from a curvilinear to an essentially linear isotherm Sorption capacity generally increased down the profile to 60 cm on the treated sites Only a small proportion of the total P accumulated from waste water addition was in the organic form Large amounts of P were extractable by 0 01 M CaCl2, particularly in the upper 45 cm of the profiles receiving waste water Although lack of crop removal of P and a high infiltration rate may be partly responsible for the poor performance of the Manteca system in terms of P removal from waste water, the very low P sorption capacity of the soil is regarded as the major factor

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Oceanography, Salinity, Temperature gradients, Density (mass/volume), Drift stations, Arctic Ocean.
A program designed to measure temperature and conductivity in the upper 270 m of the Arctic Ocean within a 150 km radius of Drift Station FRAM I is described, and data in the form of profiles of temperature, salinity, and density as functions of depth are presented for each of 104 casts made with a portable, self-contained conductivity-temperature-depth instrument Seventy-five of the casts were made away from the ice station at sites reached by helicopter. Details of sampling procedure, instrument calibration, and data organization are given

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Glacial hydrology, Subglacial drainage, Firn, Meltwater, Water flow, Water level, Experimentation, Mountain glaciers.

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Glacier surveys, Glacier tongues, Glacier alimentation, Snow accumulation, Firn.

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Aerosols, Origin, Composition, Polar regions, Statistical analysis.

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Sublimation, Permafrost preservation, Dust control.
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35-3738
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For selected papers see 35-3739 through 35-3744.
Mountain glaciers, Geomorphology, Glacial meteorology, Vegetation, France—Alps, USSR—Caucasus.

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Krenke, A.N.
Glaciation, Mountain glaciers, Glacier mass balance, Geomorphology, Climate, Glacial meteorology, Avalanches, USSR—Caucasus.

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Glacier mass balance, Glacier oscillation, Glacial meteorology, Climate, France—Alps, USSR—Caucasus.

35-3743
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35-3746
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Snowfall, Snow water equivalent, Snow cover distribution, Remote sensing, Measurement.

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35-3761
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Snowdrifts, Countermeasures, Snow fences, Protective vegetation, Snow accumulation, Wind factors, Topographic features, Buildings, Design.

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35-3768
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35-3775
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Ice electrical properties, Electric charge, Charge transfer, Electric fields, Snowflakes, Atmospheric electricity.
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35-3777
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35-3778
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35-3780
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35-3783
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Ice control, Ice removal, Snow removal, Road maintenance.

35-3784
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35-3787
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Soil mechanics, Soil water, Water retention, Density (mass/volume), Tensile properties, Frost penetration, Temperature effects, Measuring instruments.
Methods for using tensiometers in conjunction with moisture retention characteristic curves for non-destructive soil water measurements are presented for above- and below-freezing situations of engineering interest. Four methods for determining moisture retention characteristics, three tensiometer types, and several methods of recording soil suction are discussed. Procedures for preparing, modifying and installing tensiometers for field use in cold climates are explained. Several examples of moisture retention characteristics are shown, including the effect of soil density on water retention. Examples of soil tension ahead of and behind a frozen soil zone are also presented.

35-3797
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Spaceborne photography, Active layer, Soil water, Permafrost, Ground thawing, Photointerpretation.

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35-3799
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35-3800
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35-3801
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Ukleba, K.K.
Snow cover distribution, Slope orientation, Snow surveys, Snow depth, Slope processes, Avalanches, USSR—Caucasus.

35-3803
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35-3805
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Placer mining, Frozen fines, Hardness tests, Ground ice, Dredging, Water supply, Land reclamation, Revegetation, Permafrost.

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35-3807
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Placer mining, Frozen rocks, Ground ice, Dredging, Water supply, Artificial melting.

35-3808
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Placer mining, Cryogenic soils, Frozen rocks, Land reclamation, Revegetation.

35-3809
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Ice creep, Shear stress, Sliding, Ice adhesion, Velocity, Glacier flow, Viscosity, Rheology, Boundary layer, Analysis (mathematics).

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35-3814
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35-3815
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Concrete structures, Hydraulic structures, Freeze thaw cycles, Design, Frost action, Thermal stresses.

35-3816
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35-3817
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35-3818
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Soil freezing, Frost penetration, Soil water migration, Phase transformations.

35-3819
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For selected papers see 35-3820 through 35-3824. Refs. passim.
DLC GB239.O23Z34
Taiga, Landscape types, Ecosystems, Geography, Cryogenic soils, Vegetation, Plant ecology, Snow cover distribution, Snow cover structure, Economic development, Environmental protection, Mathematical models, Theories, Experimentation.

35-3820
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Taiga, Geography, Landscape types, Cryogenic soils, Plant ecology, Ecosystems, Systems analysis.

35-3821
Stability of tree stratum in relation to the study of optimal conditions in geosystems of the Konda-Sos'va Priob'e. (Ustoichivost' drevesnogo iarusa geosistem Kondo-Sos'vinskogo Priob'ia v sviazi s izucheniem ikh optimal'nosti).
Kuz'menko, E.I., Zakonomernosti formirovaniia elementarnykh geosistem (na primere srednetaezhnykh struktur Sos'vinskogo Priob'ia) (Regularities governing the formation of elementary geosystems (the central taiga sturctures of Sos'vinskoe Priob'e as an example)) edited by V.S. Mikheev, Irkutsk, 1978, p 22-42. In Russian. 25 refs.
DLC GB239.O23Z34
Taiga, Landscape types, Biomass, Cryogenic soils, Plant ecology, Ecosystems, Paludification, Analysis (mathematics), USSR—Ob' River.

35-3822
Statistical and functional relations between central taiga structures of topologic order. (Nekotorye statisticheskie i funktsional'nye zavisimosti srednetaezhnykh struktur topologicheskogo poriadka).
Mikheev, V.S., Zakonomernosti formirovaniia elementarnykh geosistem (na primere srednetaezhnykh struktur Sos'vinskogo Priob'ia) (Regularities governing the formation of elementary geosystems (the central taiga sturctures of Sos'vinskoe Priob'e as an example)) edited by V.S. Mikheev, Irkutsk, 1978, p.42-69. In Russian. 18 refs.
DLC GB239.O23Z34
Taiga, Geography, Mapping, Landscape types, Vegetation.

35-3823
Soils of the Konda-Sos'va Priob'e. (Pochvy Kondo-Sos'vinskogo Priob'ia).
Sazonov, A.G., Zakonomernosti formirovaniia elementarnykh geosistem (na primere srednetaezhnykh struktur Sos'vinskogo Priob'ia) (Regularities governing the formation of elementary geosystems (the central taiga sturctures of Sos'vinskoe Priob'e as an example)) edited by V.S. Mikheev, Irkutsk, 1978, p.70-96. In Russian. 16 refs.
DLC GB239.O23Z34
Taiga, Cryogenic soils, Podsol, Paludification, Meadow soils, Soil profiles, Soil chemistry, Vegetation factors.

35-3824
Typification of central taiga facies in West Siberia according to thermal conditions and the structure of radiation-meteorological fields. (Ordinatsiia srednetaezhnykh fatsii Zapadnoi Sibiri po usloviiam teploobespechennosti i strukture radiatsionno-meteorologicheskikh polei).
Trofimova, I.E., Zakonomernosti formirovaniia elementarnykh geosistem (na primere srednetaezhnykh struktur Sos'vinskogo Priob'ia) (Regularities governing the formation of elementary geosystems (the central taiga sturctures of Sos'vinskoe Priob'e as an example)) edited by V.S. Mikheev, Irkutsk, 1978, p 97-123. In Russian. 10 refs.
DLC GB239.O23Z34
Taiga, Landscape types, Swamps, Plant ecology, Plant physiology, Photosynthesis, Solar radiation, Microclimatology, Radiation balance.

35-3825
Natural resources of the northeastern USSR. (Prirodnye resursy Severo-Vostoka SSSR).
Lozhkin, A.V., ed. Vladivostok, 1976, 152p., In Russian. For selected papers see 35-3826 through 35-3834. Refs passim.
DLC HC337.S525P74
Arctic Ocean, Shores, Climate, Records (extremes), Snow cover distribution, Continuous permafrost, Arctic landscapes, Taiga, Permafrost hydrology, Tundra, Thermokarst lakes, USSR—Magadan.

35-3826
Climatic conditions of the Magadan Region. (Klimaticheskie resursy Magadanskoi oblasti).
Mel'nikova, T.V., Prirodnye resursy Severo-Vostoka SSSR (Natural resources of the northeastern USSR) edited by A.V. Lozhkin, Vladivostok, 1976, p 5-21. In Russian. 3 refs.
DLC HC337.S525P74
Shores, Climate, Records (extremes), Radiation balance, Snow cover distribution, Continuous permafrost, Arctic landscapes, Air temperature, Diurnal variations, Seasonal variations, Meteorological charts, Meteorological data, USSR—Magadan, Arctic Ocean.

35-3827
Representativeness of runoff at the Kolyma Water-Balance Station for the Upper Kolyma territory. (Reprezentativnost' kharakteristik stoka Kolymskoi vodnobalansovoi stantsii dlia territorii verkhnei Kolymy).
Nasybuiin, Sh.S., Prirodnye resursy Severo-Vostoka SSSR (Natural resources of the northeastern USSR) edited by A.V. Lozhkin, Vladivostok, 1976, p.32-41. In Russian. 2 refs.
DLC HC337.S525P74
Polar regions, Landscape types, Taiga, Continuous permafrost, Active layer, Soil water migration, Snow water equivalent, Runoff, Permafrost hydrology, USSR—Kolyma.

35-3828
Snow cover and its melting dates in the central part of Wrangel Island. (Snezhnyi po rov i sroki ego skhoda v tsentral'noi chasti ostrova Vrangelia).
Varich, A.A., Prirodnye resursy Severo-Vostoka SSSR (Natural resources of the northeastern USSR) edited by A.V. Lozhkin, Vladivostok, 1976, p 42-45, In Russian. 1 ref.
DLC HC337.S525P74
Polar regions, Climate, Snow cover distribution, Snow depth, Snow melting, Tundra, Mountains, Slope orientation, USSR—Wrangel Island.

35-3829
Physiography and recent geological processes in the northeastern USSR. (Fiziko-geograficheskaia sreda i sovremennye geologicheskie protsessy na Severo-Vostoke SSSR).
Shumilov, IU.V., Prirodnye resursy Severo-Vostoka SSSR (Natural resources of the northeastern USSR) edited by A.V. Lozhkin, Vladivostok, 1976, p.46-54. In Russian. 11 refs.
DLC HC337.S525P74
Subpolar regions, Geocryology, Rivers, Water chemistry, Alluvium, Frost weathering, Sedimentation, Sediment transport, Solifluction, Alpine tundra, Continuous permafrost.

35-3830
Recent processes which formed the present surface of the Yana-Indigirka Plain. (O nekotorykh protsessakh formirovaniia sovremennoi poverkhnosti IAno-Indigirskoi nizmennosti).
Fgorova, G.N., Prirodnye resursy Severo-Vostoka SSSR (Natural resources of the northeastern USSR) edited by A.V. Lozhkin, Vladivostok, 1976, p 55-65. In Russian. 21 refs
DLC HC337.S525P74
Plains, Active layer, Permafrost depth, Geocryology, Permafrost hydrology, Thermokarst, Alassy, Permafrost structure, Ice wedges, USSR—Yana River, USSR—Indigirka River.

35-3831
Thermokarst lakes in the glacial and fluvio-glacial accumulation plains in the Lower Anadyr lowlands. (Ozernyi termokarst na ravninakh lednikovoi i vodno-lednikovoi akkumuliatsii v Nizhneanadyrskoi nizmennosti).
Riabchun, V.K., Prirodnye resursy Severo-Vostoka SSSR (Natural resources of the northeastern USSR) edited by A.V. Lozhkin, Vladivostok, 1976, p.66-72. In Russian. 9 refs.
DLC HC337.S525P74
Plains, Permafrost structure, Thermokarst lakes, Shores, Solifluction, Permafrost hydrology, Alluvium, Ground ice, Ice formation.

35-3832
Ground ice in massive granite. (Podzemnyi led v granitnom massive).
Gol'dtman, V.G., Prirodnye resursy Severo-Vostoka SSSR (Natural resources of the northeastern USSR) edited by A.V. Lozhkin, Vladivostok, 1976, p 73-76. In Russian 1 ref
DLC HC337.S525P74
Igneous rocks, Fracture zones, Ice formation, Ice veins, Mining.

35-3833
Artificial intrapermafrost taliks for winter water supply in mountains. (Iskusstvennyi mezhmerzlotnyi talik dlia zimnego vodosnabzhenia v usloviiakh gornogo rel'efa).
Gol'dtman, V.G., et al, Prirodnye resursy Severo-Vostoka SSSR (Natural resources of the northeastern USSR) edited by A.V. Lozhkin, Vladivostok, 1976, p.77-84
Motrich, L.T., Kalmykov, P.N
DLC HC337.S525P74
Mountains, Permafrost beneath rivers, Artificial melting, Equipment, Taliks, Permafrost hydrology, Water supply.

35-3834
Young age of some "ancient" moraines in the upper course of the Kolyma River. (O molodom vozraste nekotorykh "drevnikh" moren v verkhov'e reki Kolymy).
Gol'dfarb, IU.I., Prirodnye resursy Severo-Vostoka SSSR (Natural resources of the northeastern USSR) edited by A.V. Lozhkin, Vladivostok, 1976, p 100-106. In Russian. 9 refs.
DLC HC337.S525P74
River basins, Mountain glaciers, Moraines, Age determination, USSR—Kolyma River.

35-3835
Proceedings.
Workshop on Sea Ice Field Measurement, St. John's, Newfoundland, Apr. 29-May 1, 1980. *Memorial University of Newfoundland. Centre for Cold Ocean Resources Engineering C-CORE publication.* Dec 1980. No.80-21. 360p. Refs. passim. For individual papers see 35-3836 through 35-3849.
Allan, A.J., comp, Bazeley, D.P., comp
Sea ice, Ice strength, Ice loads, Ice pressure, Ice friction, Offshore structures, Ice solid interface, Stresses, Strain tests, Hydraulic structures, Measuring instruments.

35-3836
Relationship of stress and strain in sea ice.
Denner, W.W., *Memorial University of Newfoundland. Centre for Cold Ocean Resources Engineering C-CORE publication.* Dec. 1980. No.80-21, p.5-32. 21 refs.
Sea ice, Stress strain diagrams, Drift, Salinity, Ice temperature, Ice mechanics, Ice loads, Ice elasticity, Ice viscosity, Ice strength, Loads (forces).

35-3837
Strain measurements in floating ice platforms.
Anderson, K G , et al. *Memorial University of Newfoundland Centre for Cold Ocean Resources Engineering. C-CORE publication.* Dec. 1980. No.80-21, p.33-53, 13 refs
Perry, C.
Floating ice, Strain tests, Ice elasticity, Loads (forces), Ice cover strength, Flexural strength.

35-3838
Small scale surface strain measurement on sea ice.
Murat, J.R., *Memorial University of Newfoundland Centre for Cold Ocean Resources Engineering. C-CORE publication,* Dec 1980, No.80-21, p.55-74, 16 refs.
Sea ice, Strain tests, Stresses, Flexural strength, Ice creep, Ice strength, Ice cover strength, Loads (forces).

35-3839
Surface strain measuring instruments for use on sea ice.
Goodman, D.G., *Memorial University of Newfoundland. Centre for Cold Ocean Resources Engineering. C-CORE publication,* Dec. 1980, No.80-21, p.75-96, 20 refs.
Glacier ice, Ice strength, Strain tests, Ice surface, Measuring instruments.

35-3840
Recent developments in strainmeter design.
Moore, S., et al, *Memorial University of Newfoundland. Centre for Cold Ocean Resources Engineering. C-CORE publication.* Dec. 1980, No.80-21, p.97-125, 18 refs.
Wadhams, P.
Strain tests, Ice floes, Measuring instruments, Water waves, Ice cover thickness.

35-3841
Measurement of finite strain in sea ice by impulse radar techniques.
Stander, E., et al, *Memorial University of Newfoundland. Centre for Cold Ocean Resources Engineering. C-CORE publication,* Dec. 1980, No 80-21, p.127-164, 17 refs.
Gidney, G.A.
Sea ice, Strain tests, Remote sensing, Radar echoes, Ice optics, Ice crystal size, Ice crystal structure, Ice sheets, Analysis (mathematics).

35-3842
Tubular transducer for in situ stress measurements in sea ice.
Frederking, R , *Memorial University of Newfoundland. Centre for Cold Ocean Resources Engineering. C-CORE publication,* Dec 1980, No.80-21, p.165-192, 9 refs.
Sea ice, Stresses, Strains, Ice loads, Ice strength, Offshore structures, Ice elasticity, Pipes (tubes), Analysis (mathematics), Theories.

35-3843
OSI ice stress sensor.
Johnson, J.B., et al, *Memorial University of Newfoundland. Centre for Cold Ocean Resources Engineering. C-CORE publication,* Dec. 1980, No.80-21, p.193-207, 10 refs
Cox, G.F.N.
Sea ice, Measuring instruments, Ice loads, Ice strength, Stresses, Offshore structures, Ice deformation.

35-3844
Monitoring sea ice ridgebuilding and stresses.
Biswas, N.N., et al, *Memorial University of Newfoundland. Centre for Cold Ocean Resources Engineering C-CORE publication,* Dec 1980, No.80-21, p.209-236, 28 refs.
Sackinger, W.M.
Sea ice, Pressure ridges, Stresses, Drift, Artificial islands, Dynamic loads, Monitors, Fracturing, Seismic surveys.

35-3845
Ship's hull as a test instrument.
Edwards, R., et al, *Memorial University of Newfoundland. Centre for Cold Ocean Resources Engineering. C-CORE publication,* Dec. 1980, No.80-21, p.237-274, 7 refs.
Tam, W., Nawwar, A.M.
Ice loads, Ships, Ice pressure, Impact strength, Strains, Ice solid interface, Measuring instruments, Icebreakers, Ice strength.

35-3846
Calibration testing of *M.V. Arctic* for the measurement of ice breaking loads.
Iyer, S H., *Memorial University of Newfoundland. Centre for Cold Ocean Resources Engineering. C-CORE publication,* Dec. 1980, No.80-21, p.275-302, 2 refs.
Icebreakers, Impact strength, Loads (forces), Strains, Ice loads, Tests, Ice breaking.

35-3847
Field measurement of kinematic friction between ice and rigid structures.
Comfort, G , et al, *Memorial University of Newfoundland. Centre for Cold Ocean Resources Engineering. C-CORE publication,* Dec. 1980, No.80-21, p.303-321, 6 refs.
Nawwar, A.M.
Ice friction, Offshore structures, Steel structures, Ice loads, Sliding, Ice solid interface, Ships, Measuring instruments.

35-3848
Proposed methods for the instrumentation of a small island to measure pack ice forces.
Jones, J.M., *Memorial University of Newfoundland Centre for Cold Ocean Resources Engineering. C-CORE publication,* Dec. 1980, No.80-21, p.323-342, 7 refs.
Pack ice, Ice pressure, Ice loads, Offshore structures, Artificial islands, Impact strength, Drift, Ice strength, Ice conditions, Measuring instruments.

35-3849
Ice force measurements in Finnish lighthouses.
Määttänen, M., *Memorial University of Newfoundland. Centre for Cold Ocean Resources Engineering. C-CORE publication.* ! ec. 1980, No.80-21, p.343-353, 2 refs.
Ice loads, Offshore structures, Impact strength, Ice pressure, Pressure ridges, Ice mechanics, Lighthouses.

35-3850
Effect of electric currents on the nucleation of ice crystals in the melt.
Shichiri, T , et al, *Journal of crystal growth,* Aug. 1981, 54(2), p.207-210, 13 refs
Nagata, T.
Ice crystal nuclei, Nucleation, Electric fields, Ion density (concentration), Supercooling, Water, Temperature effects, Experimentation.

35-3851
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Aircraft icing, Aircraft landing areas, Snow cover effect, Cold weather operation.

35-3852
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Ross, R., *Journal of aircraft,* Nov. 1980, 17(11)), p.830-832.
Aircraft icing, Ice prevention, Thermal effects, Ice forecasting, Thermocouples, Mathematical models.

35-3853
Coupling protects snow thrower's motor and power train.
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Snow removal, Equipment, Engines, Polymers, Protection.

35-3854
Glacier threatens shipping lanes. *Petroleum engineer international,* Sep. 1980, 52(11), p.10-16.
Glacier ablation, Calving, Ice navigation, Offshore structures, Icebergs, Forecasting, Glacier flow, Monitors.

35-3855
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Chang, A T C , et al, *Remote sensing of environment,* Nov. 1980, 10(3), p.215-229, For another version see 34-2358, 18 refs
Shiue, J.C.
Snow cover, Microwaves, Radiometry, Snow water equivalent, Mathematical models.

35-3856
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Connor, B.
Ground ice, Roads, Ground thawing, Damage, Permafrost beneath roads, Thermal regime, Peat, Ice melting.

35-3857
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Zarling, J , *Northern engineer,* Winter 1980, 12(4), p.11-16, 8 refs
Heating, Thermal insulation, Solar radiation, Buildings, Cold weather construction, Design.

35-3858
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McHattie, R , *Northern engineer,* Winter 1980, 12(4), p.17-21, 1 ref.
Roads, Cracks, Pavements, Damage, Ground thawing, Climatic factors, Fatigue (materials).

35-3859
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Osterkamp, T.E , et al, *Northern engineer,* Winter 1980, 12(4), p.27-30, 4 refs.
Jurick, R.W.
Ground ice, Permafrost, Ice detection, Geophysical surveys.

35-3860
Rubber in pavements for ice control.
Esch, D., *Northern engineer,* Winter 1980, 12(4), p.34-39.
Pavements, Ice control, Concrete admixtures, Bitumens, Road icing, Countermeasures, Elastomers.

35-3861
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Mulvihill, C.E., *Fire engineering,* Jan. 1981, 134(1), p.110-111.
Luminescence, Coatings, Fires, Snow cover effect, Fire hydrants.

35-3862
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Cooling towers, Ice prevention, Water temperature, Thermal regime, Air flow, Ice accumulation, Damage, Countermeasures.

35-3863
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Vasilevich, V I , ed, Leningrad, Nauka, 1980, 256p , In Russian with English table of contents enclosed, Refs, p.241-252.
Taiga, Cryogenic soils, Vegetation, Paludification, Plant ecology, Ecosystems, Alpine landscapes, Alpine tundra, Rock streams, USSR—Ural Mountains.

35-3864
Facings of dome-shaped structures built under severe climatic conditions. (Kupol'nye pokrytiia dlia stroitel'stva v usloviiakh surovogo klimata),
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35-3865
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Ice crystal optics, Snow crystals, Water content, Liquid phases, Airborne radar, Spectra, Particle size distribution, Precipitation (meteorology).

35-3866
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Srivastava, R.C.
Falling bodies, Ice crystal optics, Snow crystals, Snowfall, Velocity, Radar echoes, Spectra, Particles.

35-3867
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Mackay, D., ed, Paterson, S., ed.
Oil spills, Sea ice, Liquid solid interfaces, Environmental impact, Countermeasures, Meetings, Equipment, Crude oil, Natural gas, Beaufort Sea.

35-3868
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35-3869
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Oil spills, Sea ice, Subglacial observations, Water pollution, Countermeasures, Equipment, Ice bottom surface.

35-3870
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Oil spills, Sea ice distribution, Ice cover, Pollution, Countermeasures, Equipment.

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Sea ice, Oil spills, Water pollution, Countermeasures, Natural gas, Snow cover, Pollution.

35-3872
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35-3873
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Oil spills, Ice bottom surface, Natural gas, Subglacial observations, Migration, Offshore drilling, Experimentation.

35-3874
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Oil spills, Subglacial observations, Ice bottom surface, Interfaces, Migration, Liquid solid interfaces, Sea water.

35-3875
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35-3876
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35-3877
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35-3878
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35-3879
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35-3880
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Oil spills, Ice cover, Shores, Research projects, Liquid solid interfaces, Migration, Detection, Subglacial observations, Climatic factors.

35-3881
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35-3882
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35-3883
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Ice friction, Ice solid interface, Water films, Ice hardness, Ice loads, Ice temperature, Thermal regime, Velocity, Statistical analysis.

35-3884
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Wave propagation, Ice crystals, Rain, Telecommunication, Spacecraft, Attenuation, Electric fields, Models, Polarization (waves).

35-3885
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35-3887
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Ice conditions, Permafrost distribution, Geocryology, Coastal topographic features, Lithology, Sedimentation, Shores, Sediment transport, Subsea permafrost, Landscape types, Arctic Ocean.

35-3888
Road construction manual for engineers. (Spravochnik inzhenera-dorozhnika).
Bochin, V.A., ed, Moscow, Transport, 1980, 511p (Pertinent p.367-498), In Russian with abridged English table of contents enclosed. 68 refs
Roads, Roadbeds, Foundations, Pavements, Permafrost beneath structures, Earthwork, Cold weather construction, Construction materials, Cements, Soil stabilization, Winter maintenance, Snow removal.

35-3889
New data on the phytogeography of Siberia. (Novye dannye o fitogeografii Sibiri).
Krasnoborov, I.M., et al, Novosibirsk, Nauka, 1981, 232p., In Russian For selected papers see 35-3890 through 35-3896. Refs. passim.
Safonova, T.A.
Taiga, Tundra, Plankton, Alpine landscapes, Algae, Plant ecology, Ecosystems, Biomass, Forest tundra, Cryogenic soils, Permafrost beneath rivers, Alpine tundra, Slope orientation, Continuous permafrost, Rivers.

35-3890
Algae in the upper course of the Kiya River basin (Kuznetskiy Alatau). (K flore vodoroslei vodoemov basseina verkhnego techeniia r. Kia (Kuznetskii Alatau)).
Safonova, T.A., Novye dannye o fitogeografii Sibiri (New data on the phytogeography of Siberia) edited by I.M. Krasnoborov and T.A. Safonova, Novosibirsk, Nauka, 1981, p.4-16, In Russian 3 refs.
Swamps, Plankton, gae, Lakes, River basins, Landscape types, Taiga USSR—Kuznetskiy Alatau.

35-3891
Phytoplankton of the Pyasina River (western Taymyr). (Fitoplankton r. Piasina (Zapadnyi Taimyr)).
Ermolaev, V.I., Novye dannye o fitogeografii Sibiri (New data on the phytogeography of Siberia) edited by I.M. Krasnoborov and T.A. Safonova, Novosibirsk, Nauka, 1981, p.16-29, In Russian. 7 refs.
Rivers, Biomass, Cryogenic soils, Plankton, Continuous permafrost, Tundra, Plant ecology, Landscape types, Ecosystems, USSR—Taymyr Peninsula.

35-3892
Ecologic-geographic analysis of the *Mitella nuda* L. spruce forest in the northern foothills of eastern Sayan. (Ekologo-geograficheskii analiz flory el'nika s Mittela nuda L. severnykh predgorii Vostochnogo Saiana).
Beglianova, M.I., et al, Novye dannye o fitogeografii Sibiri (New data on the phytogeography of Siberia) edited by I.M. Krasnoborov and T.A. Safonova, Novosibirskirsk, Nauka, 1981, p.37-52, In Russian 2 refs.
Kashina, L.I., Vasil'ev, A.N., Kravchuk, S.V
Plant ecology, Ecosystems, Mosses, Lichens, Taiga, Landscape types.

35-3893
Nemorose element in the musci of the Altai and eastern Sayan highlands. (Nemoral'nyi element vo flore listostebel'nykh mkhov vysokogorii Altaia i Zapadnogo Saiana).
Gudoshnikov, S.V., Novye dannye o fitogeografii Sibiri (New data on the phytogeography of Siberia) edited by I.M. Krasnoborov and T.A. Safonova, Novosibirsk, Nauka, 1981, p 52-60, In Russian. 39 refs.
Cryogenic soils, Alpine landscapes, Mosses, Plant ecology, Ecosystems, Taiga, USSR—Altai Mountains, USSR—Sayan Mountains.

35-3894
Hypoarcti. species in the flora of the Tuva ASSR. (Gipoarkticheskie vidy vo flore Tuvinskoi ASSR).
Krasnoborov, I.M., Novye dannye o fitogeografii Sibiri (New data on the phytogeography of Siberia) edited by I.M. Krasnoborov and T.A. Safonova, Novosibirsk, Nauka, 1981, p.112-119, In Russian. 20 refs.
Forest tundra, Plant ecology, Taiga, Ecosystems, Tundra, Landscape types.

35-3895
Floristic peculiarities of rocky landscapes in the forest belt of the Systyg-Khem River basin (western Sayan). (Floristicheskie osobennosti kamenistykh mestoobitanii lesnogo poiasa doliny r Systyg-Khem (Zapadnyi Saian)).
Danilov, M.P., Novye dannye o fitogeografii Sibiri (New data on the phytogeography of Siberia) edited by I.M. Krasnoborov and T.A. Safonova, Novosibirsk, Nauka, 1981, p.119-133, In Russian. 15 refs.
Forest land, Paludification, Plant ecology, Slope orientation, Ecosystems, Landscape types, USSR—Sayan Mountains.

35-3896
Flora of pine forests in central Tuva. (K flore sosnovykh lesov Tsentral'noi Tuvy).
Shaulo, D.N., Novye dannye o fitogeografii Sibiri (New data on the phytogeography of Siberia) edited by I.M. Krasnoborov and T.A. Safonova, Novosibirsk, Nauka, 1981, p.197-210, In Russian. 9 refs.
Alpine tundra, Taiga, Steppes, Cryogenic soils, Plant ecology, Ecosystems, Alpine landscapes.

35-3897
Safety rules for docking ships under severe climatic conditions. (Okhrana truda pri dokovanii sudov v surovykh klimaticheskikh usloviiakh).
Ivanov, L.V., et al, Moscow, Transport, 1980, 152p., In Russian. 70 refs.
Finkel', G.N., Fedorov, I.P.
Docks, Wharves, Ships, Winter maintenance, Frost action, Dynamic loads, Wind factors, Heating, Ventilation, Design.

35-3898
Concrete dam of the Ust'-Ilim hydroelectric power plant (Field observations and studies). (Betonnaia plotina Ust'-Ilimskoi GES (Naturnye nabliudenna i issledovaniia)).
Eidel'man, S.IA., et al, Moscow, Energiia, 1981, 137p., In Russian. 34 refs.
Durcheva, V.N.
Electric power, Hydraulic structures, Dams, Permafrost beneath structures, Concrete structures, Concrete freezing, Frost resistance, Freeze thaw cycles, Concrete strength, Fracturing.

35-3899
Productivity of high altitude grass communities in the central Caucasus. (Produktivnost' vysokogornykh travianykh soobshchestv Tsentral'nogo Kavkaza).
Nakhutsrishvili, G.Sh., et al, Tbilisi, Metsniereba, 1980, 159p., In Russian with German summary. Refs. p.151-158
Ch..hikvadze, A.K., Khetsuriani, L.D.
Alpine landscapes, Grasses, Plant ecology, Ecosystems, Biomass, Cryogenic soils, Meadow soils, Bibliographies, Nivation, Snow cover effect, USSR—Caucasus.

35-3900
Defense meteorological satellite program data. *World Data Center-A for Glaciology (Snow and Ice) Data announcement*, 1981, 81-GLA-01, 4p.
Meteorological data.
The establishment is reported of an adjunct collection of satellite imagery mosaics acquired by WDC-A from the U.S.A.F. Defense Meteorological Satellite Program (DSMP). The operational scheme, the frequency of imagery coverage, the image resolution and usages are described. A map is included showing global coverage sectors and sample marked mosaics are shown. The map outlines the antarctic area coverage and one of the mosaics is of the Antarctic Peninsula and the Ronne Ice Shelf.

35-3901
Pleistocene glaciations on Svalbard.
Punning, IA.-M.K., et al, *Polar geography and geology*, Jan.-Mar. 1981, 5(1), p.20-26, For Russian original see 24-2209. 9 refs.
Troitskii, L.S.
Moraines, Radioactive age determination, Quaternary deposits, Norway—Spitsbergen.

35-3902
Some results of palynological investigation on Severnaya Zemlya in relation to the question of the transport of pollen and spores in the High Arctic.
Kalugina, L.V., et al, *Polar geography and geology*, Jan.-Mar. 1981, 5(1), p.27-32, For Russian original see 34-1389. 5 refs.
Malakhovskii, D.B., Makeev, V.M., Safronova, I.N.
Pollen, Palynology.

35-3903
Thermal energy exchange between the ice cover and the atmosphere in East Antarctica.
Aver'ianov, V.G., *Polar geography and geology*, Jan.-Mar. 1981, 5(1), p.32-39, For Russian original see 34-2215 or 11F-22883. 7 refs.
Ice sheets, Heat transfer, Heat balance, Solar radiation, Antarctica—Mirnyy Station, Antarctica—Vostok Station.
The author examines the mean annual numerical values of the heat budget of the ice surface, the atmosphere and the ice surface-atmosphere system at the Soviet Antarctic stations of Mirnyy and Vostok. The structure of the heat budget at the stations is discussed. The main source of heat energy at the edge of the ice sheet is the heat from the crystallization of moisture in the atmosphere, and in the central portion of the ice sheet, the advection of heat from the ocean. The common cause of heat loss from both ice surface and atmosphere in the two regions is long-wave radiation. (Auth.)

35-3904
Interannual and long-period variations of ice distribution in the Atlantic sector of the Antarctic.
Dobromyslov, V.V., et al, *Polar geography and geology*, Jan.-Mar. 1981, 5(1), p.40-44, For Russian original see 34-2218 or 11F-22886. 9 refs.
Maslennikov, V.V.
Sea ice distribution, Periodic variations, Ice edge, South Atlantic Ocean.
Variations in the position of the ice edge in the Atlantic sector of the Antarctic are examined both on a month-to-month and a year-to-year basis using satellite imagery for the period 1971-76. A comparison of the data with information on ice distribution in the first half of the 20th century suggests a substantial reduction of ice cover in the 1971-76 period. (Auth.)

35-3905
Ice sheets and ice melts.
Emiliani, C., *Natural history*, Nov. 1980, 89(11), p.82-91.
Ice sheets, Ice melting, Geologic processes, Sea level, History.
Described in lay terms are the geologic events of flooding or freezing which occur periodically and then subside. Results of these waxings and wanings are the carving of landscapes, raising and lowering of sea levels and water tables, and drifting continents. Such events are described in some detail for North America and to a lesser degree for Antarctica.

35-3906
Arctic navigation past, present and future.
Maybourn, R., *Journal of navigation*, Jan. 1981, 34(1), p.1-18. 10 refs.
Sea ice, Ice navigation, History, Polar regions.

35-3907
Use of radar in polar areas.
Biskopshaun, B., *Journal of navigation*, May 1981, 34(2), p.303-305.
Radar, Ice navigation, Polar regions.

35-3908
Ice in the polar regions of the moon.
Lanzerotti, L.J., et al, *Journal of geophysical research*, May 10, 1981, 86(B5), p.3949-3950. 11 refs.
Brown, W.L., Johnson, R.E.
Ice formation, Polar regions, Moon.

35-3909
Tidal flexure of Jakobshavns Glacier, West Greenland.
Lingle, C.S., et al, *Journal of geophysical research*, May 10, 1981, 86(B5), p.3960-3968, 15 refs.
Hughes, T.J., Kollmeyer, R.C.
Glacier ice, Flexural strength, Tides, Ice cover thickness.

35-3910
Seasonality of Southern Ocean sea ice.
Gordon, A.L., *Journal of geophysical research*, May 20, 1981, 86(C5), p.4193-4197, 38 refs.
Sea ice distribution, Seasonal variations, Heat flux, Ice melting.
The sea ice cover of the Southern Ocean undergoes a rapid decrease from mid-November to mid-January. The atmosphere-to-ocean heat flux is insufficient to account for this melting, even in the presence of the high percentage of open water characteristic of the Southern Ocean sea ice. It is estimated that sea-air heat exchange in the 60S to 70S zone can account for roughly 50% of the required spring heating. The remainder must be supplied by the relatively warm deep water residing below the Southern Ocean pycnocline. Deep-to-surface water heat flux is accomplished by upwelling of the pycnocline due to the regional Ekman divergence of the surface layer and by cross-pycnocline mixing. It is estimated that the required vertical mixing coefficient for the pycnocline is 1.5 sq cm/s. This value is considered realistic in view of the relatively weak pycnocline which is a consequence of low levels of fresh water input to the surface layer. It is suggested that the magnitude of fresh water input is a major factor in determining the degree of seasonality of Southern Ocean sea ice. (Auth.)

35-3911
Ocean circulation and fronts as related to ice meltback in the Chukchi Sea.
Paquette, R.G., et al, *Journal of geophysical research*, May 20, 1981, 86(C5), p.4215-4230, 17 refs.
Bourke, R.H.
Sea ice, Ice melting, Ocean currents, Water temperature, Salinity, Chukchi Sea.

35-3912
Plane waves in a viscoelastic floating ice sheet.
Bates, H.F., et al, *Journal of geophysical research*, May 20, 1981, 86(C5), p.4269-4273, 6 refs.
Shapiro, L.H.
Floating ice, Water waves, Mathematical models.

35-3913
Reaction of the accumulation zone portions of glaciers to climatic change.
Whillans, I.M., *Journal of geophysical research*, May 20, 1981, 86(C5), p.4274-4282, 14 refs.
Glacier ice, Glacier alimentation, Climatic changes, Glacier flow, Antarctica—Byrd Station.
The response of the accumulation regions of glaciers to changes in accumulation rate and in surface temperature is calculated by considering perturbations to the ice flow. The analysis is limited to glaciers in which flow is dominated by internal shear and not by bottom sliding and for which flowlines are geographically parallel. In general glaciers begin to alter thickness immediately after a change in accumulation rate, but the effect of a change in surface temperature is delayed by the time for this temperature change to penetrate to depth in the glacier. A warming leads to glacial thinning. The amount and timing of the response is very different for different glaciers. Characteristic times are on the order of tens of years for mountain glaciers and tens of thousands of years for the East Antarctic ice sheet. As an example, the theory is applied to the ice sheet near Byrd Station, Antarctica. For hypothetical changes in surface accumulation rate and temperature, rates and amounts of thickness change are calculated, and the measured thinning is probably too fast to have been caused by climatic variation alone. The effects of hypothetical climatic variations on the depth-age and depth-temperature relationships through the ice sheet are also calculated. (Auth.)

35-3914
Measurement of the microwave properties of sea ice at 90 GHz and lower frequencies.
Troy, B.E., et al, *Journal of geophysical research*, May 20, 1981, 86(C5), p.4283-4289, 13 refs.
Hollinger, J.P., Lerner, R.M., Wisler, M.M.
Sea ice, Microwaves, Brightness, Ice temperature, Classifications.

35-3915
Antarctic glacial chronology reflected in the Oligocene through Pliocene sedimentary sector of the Ross Sea.
Balshaw, K.M., Houston, Texas, Rice University, 1981, 140p., Ph.D. thesis. Refs. p.125-135.
Geochronology, Glacial geology, Marine deposits, Bottom sediment, Ice formation, Ice sheets, Antarctica—Ross Sea, Antarctica—West Antarctica.
Sedimentologic evidence from the Ross sea glacial section is combined with evidence from the literature to establish a glacial chronology for the East and West Antarctic subcontinents. The West Antarctic archipelago was completely glaciated by late Oligocene time. Renewed growth and expansion of the Ross Ice Shelf is indicated in the latest Miocene and early Pliocene Ross Sea glacial section. Development of an ice sheet over West Antarctica in the middle Miocene (14 to 10 my B.P.) requires an earlier date of formation for the East Antarctica ice sheet. This is supported by new evidence from subglacial volcanism (Stump et al., 1980). These data suggest that the continental East Antarctic ice sheet formed at 20 my B.P. causing the major eustatic sea level drop reported for that time. The majority of the data reported from Southern Ocean DSDP drill sites supports a glacial build up in the middle Miocene. If the new dates of ice sheet formation are accepted then all of this DSDP data is related to the development of the West Antarctic ice sheet, not the East Antarctic ice sheet, as generally assumed. (Auth. mod.)

35-3916
Preliminary investigation of the physical characteristics of the Vahsel Glacier, Heard Island.
Allison, I.F., *Australian National Antarctic Research Expeditions, ANARE scientific reports, Ser. A (IV) Glaciology*, 1980, No.128, 31p., 17 refs.
Glacier thickness, Glacier oscillation, Glacier ablation, Glacier mass balance, Heard Island.
During February 1971 preliminary measurements were made on the Vahsel Glacier, Heard Island, in the South Indian Ocean. Results are presented of the surface velocity, strain-rate, surface profile, gravimetric ice thickness and ablation rates along a line across the glacier 200 m above sea level (a.s.l.). From the measurements estimates are made of the mass balance and equi

librium state of the glacier Despite the appreciable errors associated with short term measurements the results give a useful indication of the present dynamics of the glacier (Auth)

35-3917
Antarctic research programme of the Federal Republic of Germany.
Germany. Federal Republic Minister for Research and Technology, Bonn, 1981, 169p
Research projects, Antarctica.
The events leading up to the decision by the Federal Republic of Germany to become a signatory nation to the Antarctic Treaty are reviewed, responsible and cooperating German antarctic research agencies and institutions are identified German relationships with SCAR and other signatory nations are outlined and the general German philosophy toward antarctic research is set forth Included in the plans is the establishment of the Alfred Wegener Polar Research Institute in Bremerhaven, a permanent research station on the Ronne Ice Shelf and the construction of a polar research and supply ship Details are given of research plans in astronomy, biological sciences, geodesy, cartography, remote sensing, geology, geophysics, glaciology, upper atmosphere and extraterrestrial physics, meteorology and oceanography and engineering sciences The plans call for many programs to begin in the 1980-81 period and extend through 1985-86, other programs set earlier completion times and still others have a later commence period as facilities to carry out the programs become available.

35-3918
Peculiarities of foundation design in petroleum provinces of West Siberia. (Osobennosti proektirovaniia fundamentov v neftepromyslovykh raionakh Zapadnoi Sibiri),
Konovalov, A.A., et al, Leningrad, Stroiizdat, 1981, 167p., In Russian with English table of contents enclosed. 79 refs.
Roman, L.T.
Petroleum industry, Buildings, Roads, Foundations, Peat, Frozen ground physics, Permafrost beneath structures, Permafrost hydrology, Unfrozen water content.

35-3919
Recycling of milled asphalt as a frost protection material. (Wiederverwendung von Fräsasphalt als Frostschutzmaterial),
Schönberger, G., et al, *Strasse und Autobahn*, Apr 1981, 32(4), p.130-140, In German. 18 refs.
Vosteen, B.
Bitumens, Pavements, Frost penetration, Frost protection, Countermeasures.

35-3920
Rubber-ice friction and vehicle handling.
Roberts, A.D., *Tribology international*, Feb 1981, 14(1), p.14-16, 14 refs.
Water films, Skid resistance, Rubber ice friction, Vehicles, Melting points, Temperature effects, Sliding.

35-3921
New observations on the daily variation of natural ice albedo.
Bolsenga, S.J., *US National Oceanic and Atmospheric Administration NOAA technical memorandum*, July 1980, ERL GLERL-27, 36p., 7 refs.
Ice optics, Albedo, Solar radiation, Spectra, Ice melting, Diurnal variations, Snow cover effect, Slush.

35-3922
Transient freezing of liquids in tube flow.
Cheung, F.B., et al, *Nuclear science and engineering*, 1976, Vol.60, p.1-9, 5 refs.
Baker, L., Jr.
Pipes (tubes), Fluid flow, Freezing, Liquid solid interfaces, Heat transfer, Frost penetration, Latent heat, Experimentation, Mathematical models.

35-3923
Effects of the Trans-Alaska pipeline on caribou movements.
Cameron, R.D., et al, Project progress report, Federal Aid in Wildlife Restoration, Project W-21-1, Job No.318R, Vol.5, Juneau, Alaska, Department of Fish and Game, Nov. 1980, 16p., 15 refs. For Vol.4 see 34-3923.
Whitten, K.R.
Pipelines, Environmental impact, Animals, Ecology, Aerial surveys, Distribution, Survival.

35-3924
Vessel icing—know where to expect it.
Comiskey, A., *Alaska seas and coasts*, Dec. 1978, 4(5), p.6-7.
Ship icing, Ice forecasting, Sea spray, Nomographs, Water temperature.

35-3925
Vessel icing forecasts.
Ball, J., *Alaska seas and coasts*, Dec. 1978-Jan. 1979, 6(5), p.10-11.
Ship icing, Ice forecasting, Sea spray, Nomographs, Water temperature.

35-3926
Analysis of ice jams and their meteorological indicators for three winters on the Ottauquechee River, Vermont.
Bates, R.E., et al, *U.S. Army Cold Regions Research and Engineering Laboratory*, Feb 1981, CR 81-1, 27p., ADA-099 173, 11 refs
Brown, M.-L.
Ice jams, Ice breakup, Ice formation, River ice, Meteorological data.
The formation of ice jams and their meteorological indicators were studied in detail for the winters of 1975-76, 1976-77 and 1977-78 on the Ottauquechee River at and east of Woodstock, Vermont Meteorological data are presented for nearby National Weather Service Co-Operative Stations as well as for CRREL sites on the Ottauquechee River The severity of each winter is discussed, as are the effects of a heavy rainfall on a high water-equivalent snow cover The resultant runoff and subsequent ice jamming that occurs is discussed Continuous monitoring of water temperature before, during and immediately after an ice cover formed on the river during the winter of 1977-78 is included The report includes a section on warm sewer outfall effects on the ice at and below a municipal treatment plant Retrieved data will assist in future modeling studies to help predict ice formation, growth, decay and jamming of river ice covers

35-3927
Oceanography.
LeBlond, P.H., comp, *Canadian geophysical bulletin*, Dec. 1978, Vol.31, p.207-233, Refs. p.223-233.
Oceanography, Research projects, Sea ice, Water chemistry, Water pollution, Chemical composition.

35-3928
Glacier studies.
Ommanney, C.S.L., comp, *Canadian geophysical bulletin*, Dec. 1978, Vol.31, p.235-245, Refs. p.240-245.
Glaciology, Research projects, Glacial deposits, Glacier mass balance, Glacier surfaces, Geomorphology.

35-3929
Hydrology.
Brown, I.C., comp, *Canadian geophysical bulletin*, Dec. 1978, Vol.31, p.247-251.
Hydrology, Research projects, Permafrost hydrology, Glacial hydrology, Snow cover effect, Ground water.

35-3930
Recent deposits and Pleistocene paleogeography of Chukotskiy Peninsula. (Noveishie otlozheniia i paleogeografiia pleistotsena Chukotki),
Kaplin, P.A., ed, Moscow, Nauka, 1980, 295p., In Russian with English table of contents enclosed. Refs. p.285-293.
Sedimentation, Geomorphology, Stratigraphy, Radioactive age determination, Geocryology, Permafrost origin, Permafrost structure, Paleoclimatology, Paleobotany, Paleoecology, USSR—Chukotskiy Peninsula.

35-3931
Thermal and hydraulic design of pipelines for oil and petroleum products. (Teplovoi i gidravlicheskii raschety truboprovodov dlia nefti i nefteproduktov),
Agapkin, V.M., et al, Moscow, Nedra, 1981, 256p., In Russian with English table of contents enclosed. 67 refs
Krivoshein, B.L., IUfin, V.A.
Petroleum industry, Petroleum transportation, Petroleum products, Underground facilities, Pipelines, Soil temperature, Hot oil lines, Pipe laying, Permafrost beneath structures, Thermal insulation, Heat transfer, Thermal regime, Design.

35-3932
Calculating the strength and creep of artificially frozen grounds. (Raschety na prochnost' i polzuchest' pri iskusstvennom zamorazhivanii gruntov),
Vialov, S.S., et al, Leningrad, Stroiizdat, 1981, 199p., In Russian with English table of contents enclosed
Zaretskii, IU.K., Gorodetskii, S.E.
Mine shafts, Excavation, Tunneling (excavation), Artificial freezing, Frozen ground strength, Creep, Rheology, Design.

35-3933
Ice surveying methods and results. (Metodika i rezul'taty ledovoi razvedki),
Borodachev, V.E., ed, *Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy*, 1981, Vol.388, 144p., In Russian For individual papers see 35-3934 through 35-3961. Refs. passim
Gorbunov, IU.A., ed.
Ice navigation, Airborne radar, Helicopters, Ice cover thickness, Pack ice, Polynyas, Ice reporting, Icebreakers, Nuclear power, Sea ice, Lake ice, Terminology, Classifications, Arctic Ocean.

35-3934
Aerial ice surveying for navigation. (Ledovaia aviarazvedka na sluzhbe u sudovoditelia),
Lebedev, V.P., et al, *Leningrad Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut Trudy*, 1981, Vol.388, p.5-13, In Russian
Shil'nikov, V.I.
Ice navigation, Ice surveys, Aerial surveys, Ice reporting, Ice breaking, Icebreakers.

35-3935
Aerial surveys for hydrometeorological provision of national economy branches in the northern Caspian Sea. (Ispol'zovanie aviatsii dlia gidrometeorologicheskogo obespecheniia otraslei narodnogo khoziaistva na severe Kaspiiskogo moria),
Valler, F.I., et al, *Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut Trudy*, 1981, Vol.388, p.14-18, In Russian.
Egorov, I.G.
Ice conditions, Ice surveys, Ice navigation, Ice reporting, Estuaries, Ice jams, USSR—Caspian Sea.

35-3936
Experience in using airborne geodetic radar equipment for surveying ice drift and currents in ... Gulf of Finland. (Opyt primeneniia aeroradiogeodezii dlia operativnoi s"emki dreifa l'da i techenii v Finskom zalive),
Balandin, V.N., et al, *Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut Trudy*, 1981, Vol.388, p.19-21, In Russian. 7 refs
Drabkin, V.V.
Ice conditions, Drift, Water transport, Airborne radar, Ice surveys, Finland, Gulf.

35-3937
Methods of avoiding discrepancies in plotting courses for aerial ice surveys. (Neviazki prokladki puti pri vypolnenii ledovoi aviarazvedki i metody ikh ustraneniia),
Shil'nikov, V.I., *Leningrad Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut Trudy*, 1981, Vol.388, p.22-24, In Russian.
Ice navigation, Ice surveys, Aerial surveys, Ice conditions, Data processing.

35-3938
Allowing for wind characteristics when turning around aircraft. (Uchet kharakteristik vetra pri razvorote vozdushnogo sudna),
Shil'nikov, V.I., *Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy*, 1981, Vol.388, p.25-31, In Russian 4 refs
Ice surveys, Aerial surveys, Airplanes, Cold weather operation, Wind factors.

35-3939
Barrage technique of leading ships through sea ice. (Provodka morskikh sudov sposobom barrazhirovaniia),
Shil'nikov, V.I., *Leningrad Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut Trudy*, 1981, Vol.388, p.32-37, In Russian
Ice navigation, Sea ice, Ice conditions, Aerial surveys.

35-3940
Ice surveying from helicopters for winter operations in the area of approaches to the Nagaevo port. (Ledovye razvedki s vertoleta dlia obespecheniia zimnikh operatsii v raione podkhodov k portu Nagaevo),
Shatalin, N.V., *Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy*, 1981, Vol.388, p.32-40, In Russian.
Ice navigation, Ice surveys, Aerial surveys, Helicopters, Ice conditions, Ice reporting, Okhotsk Sea.

35-3941
MI-2 helicopters used for long-range ice surveys in the Arctic. (Dal'nie ledovye razvedki na vertolete MI-2 v Arktike),
Shatalin, N.V., et al, *Leningrad. Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy*, 1981, Vol.388, p.41-45, In Russian
Kholodenko, V.A.
Ice surveys, Aerial surveys, Helicopters, Ice conditions, Ice reporting, Ice breaking, Arctic Ocean.

35-3942
Preparation of data for reports on ice observations from helicopters. (O podgotovke otchetnykh materialov ledovykh nabliudenii s vertoleta),
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Ice surveys, Helicopters, Ice conditions, Ice reporting, Aerial surveys.

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Specification of aerial observations of fast ice characteristics. (O detalizatsii avianabliudenii za kharakteristikami pripaia),
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Methods of determining ice deterioration. (K metodike opredeleniia razrushennosti l'da),
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Sea ice, Ice deterioration, Ice cover strength, Ice melting, Ice breakup.

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Deterioration of ice of different age. (O razrushennosti l'dov razlichnogo vozrasta),
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Ice navigation, Ice cover strength, Ice deterioration, Ice surface, Sea ice.

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Analysis of data on ice deterioration on Dickson Island (Analiz rezul'tatov nabliudenii za razrusheniem l'da na o. Dikson),
Komov, N.I., *Leningrad Arkticheskii i antarkticheskii nauchno-issledovatel'skii institut. Trudy*, 1981, p.59-64, In Russian. 2 refs.
Sea ice, Ice deterioration, Snow cover effect, Ice melting, Ice cover thickness, Ice temperature, USSR—Dickson Island.

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Pack ice, Ice surveys, Aerial surveys, Polynyas, Ice floes.

35-3948
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Ice navigation, Ice surveys, Pack ice, Drift, Ice reporting, Accuracy, Analysis (mathematics).

35-3949
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Ice surveys, Ice conditions, Aerial surveys, Pack ice, Ice reporting, Accuracy, Arctic Ocean.

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Genetic-morphologic classification of cracks in ice covers. (Geneticko-morfologicheskaia klassifikatsiia treshchin v ledianom pokrove),
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Sea ice, Terminology, Ice cracks, Classifications.

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Sea ice, Lake ice, Ice cracks, Orientation, Fast ice.

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Ice surveys, Aerial surveys, Helicopters, Icebreakers, Ice navigation, Ice breaking.

35-3953
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35-3954
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Ice surveys, Spaceborne photography, Polynyas, Structures, Seasonal variations.

35-3956
Mobility of ice cover in Long Strait during winter. (O podvizhnosti ledianogo pokrova v prolive Longa v zimnii period),
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Sea ice, Drift, Seasonal variations, Meteorological factors, USSR—Long Strait.

35-3957
Using radar video pulse equipment for measuring ice cover thickness in summer. (Ob ispol'zovanii radiolokatsionnogo videoimpul'snogo izmeritelia tolshchiny morskogo l'da letom),
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Sea ice, Ice navigation, Ice surveys, Airborne radar, Helicopters, Ice cover thickness, Seasonal variations, Ice deterioration.

35-3958
Using radar video pulse equipment for measuring ice cover thickness during the expedition of the atomic icebreaker *Arktika* to the north pole. (Ob ispol'zovanii radiolokatsionnogo videoimpul'snogo izmeritelia tolshchiny morskogo l'da vo vremia pokhoda A/L "Arktika" na severnyi polius),
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Sea ice, Drift, Pack ice, Ice surveys, Ice reporting, Ice navigation.

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35-3961
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35-3962
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Chang, A.T.C.
Snow optics, Albedo, Cloud cover, Spectra, Grain size, Models.
The albedo of snow for different cloudiness conditions is an important parameter in the Earth's radiation budget analysis and in the study of snowpack's thermal conditions. In this study an efficient approximate method is derived to calculate the incident spectral solar flux and snow-cover albedo in terms of different atmospheric, cloud, and snow parameters. The model is illustrated using representative parameters for the Antarctic coastal regions. The albedo for a clear sky depends inversely on the solar elevation. At high elevations the albedo depends primarily upon the grain size, at low elevation the albedo depends on grain size and shape. The gradient of the albedo-elevation curve increases as the grains become larger and faceted. The albedo for a densely overcast sky is a few percent higher than the clear-sky albedo at high elevations. A simple relationship between grain size and the overcast albedo is obtained. For a set of grain size and shape, the albedo as a function of solar elevation and fractional cloud cover is tabulated (Auth. mod.)

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Atmospheric circulation, Atmospheric disturbances, Weather, Synoptic meteorology, Tundra, Heat balance, Taiga, Water balance, Landscape types, Radiation balance, Meteorological charts, Meteorological data.

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35-3969
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35-3970
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Permafrost distribution, Atmospheric circulation, Air temperature, Tundra, Wind factors.

35-3972
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Chemical ice prevention, Salting, Skid resistance, Road icing, Countermeasures.

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Permafrost distribution, Active layer, Sands, Precipitation (meteorology), Seepage, Water vapor, Condensation, Permafrost hydrology, Chemical composition, USSR—Yakutia.

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Glacier ice, Naleds, Ground ice, Glacial hydrology, Permafrost hydrology, Water flow, Alimentation.

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Permafrost hydrology, Naleds, Ground ice, Permafrost structure, Ice formation, Topographic effects.

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Chemical ice prevention, Salting, Environmental impact, Pollution, Road icing, Ions.

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Animals, Distribution, Ecology, Birds.

35-4009
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Ice sheets, Glacier mass balance, Ice shelves, Glacier flow, Glacial hydrology, Temperature distribution.
Developments in the 12 years since the first edition went to press have made necessary a complete revision of the text Extensive new field data have shown that, although the basic concepts developed in the 1950s still stand, many of them are over-simplified As a result, theories have become more complicated and, in addition, computer modelling has added a new dimension to glacier studies New chapters on ice core studies and glacier hydrology deal with topics that are now of major importance but on which little work had been done when the first edition was written A new chapter on structures and fabrics in glaciers and ice sheets treats a subject to which too little attention was paid in the original book. The chapter entitled Heat Budget and Climatology of Glaciers' amalgamates two closely-related topics that were previously discussed separately while the new Chapter 3 is devoted to the mechanism of ice deformation and the flow law Almost all the other chapters have been extensively rewritten (Auth.)

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Frost heave, Salting, Chemical ice prevention, Soil freezing, Frost penetration, Unfrozen water content, Hydraulics.

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Winter concreting, Cold weather construction, Cements.

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Cirques, Geomorphology, Orientation, Photogrammetric surveys, Landforms, Aerial surveys, Antarctica—Victoria Valley.
The morphometry of 56 cirques in the Victoria Valley system was analyzed with the aid of X, Y, Z terrain coordinates obtained by photogrammetric techniques from 1 60,000 scale high-altitude aerial photographs recorded in 1970 Morphometric indexes employed for the analyses included orientation, altitude, area, length, width, relief, and gradient, and the axis, circularity, and relief ratios The cirques in the Victoria Valley system have a dominant northeast orientation, and, with a mean area of 3.1 sq km, are considerably larger than those located in the middle latitudes In numerous instances flat divides have been reduced and headwalls breached, indicating that many cirques are in an advanced stage of development Morphological differences are attributed to the stage of cirque development rather than to variations in cirque orientation and/or lithology These models also permit the thickness of glaciers or sediments occupying the cirques to be estimated (Auth mod)

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Glacial meteorology, Glacial hydrology, Precipitation (meteorology), China—Batura Glacier.

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Mudflows, Rock streams, Landslides, Moraines, Mountain glaciers, China—Batura Glacier.

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35-4037
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Glacier oscillation, Climatic changes, Glaciation, Geomorphology, Moraines, Glacial meteorology, Paleoclimatology, Pleistocene, Glacial deposits, China—Batura Glacier.

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Glacial hydrology, Drainage, Stereomapping, Stereophotography, China—Batura Glacier.

35-4041
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Glaciers, Mapping, China—Batura Glacier.

35-4042
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Economic development, Marine transportation, Ports, Sea ice, Ice navigation, Permafrost, Polar regions.
The report addresses anticipated needs in vessels and facilities to support economic development of polar areas. It looks into what facilities and services are now available; the kinds and extent of resources open to development, the operating environment of cold, sea ice, permafrost, and periods of total darkness. Most of the report deals with the economic development of northern polar areas but an appendix specifically addresses Antarctica. With respect to Antarctica it is concluded that there is little interest in antarctic waters by U.S. commercial fisheries, that antarctic mineral and petroleum resources are more limited and less accessible than those in Arctic waters, that maritime technology developed for Arctic areas would be easy to transfer to antarctic uses, and that an ice-strengthened research vessel is needed to support U.S. antarctic scientific programs.

35-4043
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Cloud physics, Ice crystal growth, Orientation.

35-4044
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Research projects, Antarctica.
The report identifies specific projects in progress or planned at specified locations, the instruments being used, and researchers involved with the data. Eleven separate disciplines in the atmospheric and earth sciences programs plus activities in the medical and biological sciences, research vessel operations, and information programs are included. World Data Center A subcenters are identified and located as are members of the Polar Research Board, the U.S. Delegate to SCAR and members of SCAR sub-groups.

35-4045
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Snow crystal structure, Metamorphism (snow), Snow physics, Snow cover structure, Snow composition.

35-4046
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Avalanche formation, Statistical analysis.

35-4047
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Avalanche forecasting, Protection, Weather stations, Countermeasures.

35-4048
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Avalanches, Skis, Accidents, Meteorological factors, Meetings, Legislation, Mountains.

35-4049
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Tundra, Vegetation, Beaches, Shores, Tides, Classifications, Permafrost, United States—Alaska.

35-4050
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Miller, M.C.
Tundra, Mosses, Dust, Pollution, Environmental impact, Roots.

35-4051
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35-4052
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Serson, H.V.
Bottom ice, Fast ice, Beaches.

35-4053
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35-4054
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Tundra, Fires, Soil analysis, Vegetation, Environmental impact, United States—Alaska—Seward Peninsula.

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Savin, V.K., ed.
Concrete structures, Industrial buildings, Prefabrication, Residential buildings, Panels, Large panel buildings, Joints (junctions), Thermal insulation, Walls, Windows, Heat loss, Stefan problem, Frozen ground thermodynamics, Artificial freezing, Artificial thawing, Heating, Stadiums.

35-4056
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Heating, Frozen ground thermodynamics, Artificial thawing, Stefan problem, Design, Stadiums.

35-4057
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Krivoshein, B.L., Koval'kov, V.P., Solov'eva, M.P.
Stefan problem, Heat transfer, Pipes (tubes), Soil freezing, Ground thawing.

35-4058
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Anan'ina, N.M.
Industrial buildings, Walls, Thermal insulation, Large panel buildings, Residential buildings, Lightweight concretes.

35-4059
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Kondrat'ev, P.N.
Large panel buildings, Prefabrication, Panels, Joints (junctions), Heat loss, Asbestos, Cements, Thermal conductivity.

35-4060
Thermophysical characteristics of external walls consisting of two-layer panels with macroporous haydite concrete insulation. [Teplofizicheskie kharakteristiki naruzhnykh sten iz dvukhsloĭnykh panelei uteplennykh krupnoporistym keramzitobetonom],
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Beliaev, V.S.
Large panel buildings, Prefabrication, Panels, Thermal insulation, Joints (junctions), Heat loss.

35-4061
Natural turbulent convection at a vertical isothermal wall. [O turbulentnoĭ estestvennoĭ konvektsii u vertikal'noĭ stenki],
Savin, V.K., Stroitel'naia teplofizika (mikroklimat i teploizoliatsiia zdanii) (Construction thermodynamics (microclimate and thermal insulation of buildings)) edited by F.V. Ushkov and V.K. Savin, Moscow, NIISF, 1979, p.87-94, In Russian. 8 refs.
Walls, Windows, Heating, Cooling, Turbulence, Convection, Design.

35-4062
Cylindrical sonde for measuring heat transfer coefficient of lightweight thermoinsulation materials. [Opredelenie koeffitsienta teploprovodnosti legkikh teploizoliatsionnykh stroitel'nykh materialov tsilindricheskim zondom],
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Construction materials, Thermal insulation, Thermal conductivity, Measuring instruments.

35-4063
Automatic information and measuring systems for thermal and technical studies of enclosures. [Avtomatizirovannye informatsionno-izmeritel'nye sistemy dlia teplotekhnicheskikh issledovanii ograzhdaiushchikh konstruktsiĭ],
Khomutov, A.F., Stroitel'naia teplofizika (mikroklimat i teploizoliatsiia zdanii) (Construction thermodynamics (microclimate and thermal insulation of buildings)) edited by F.V. Ushkov and V.K. Savin, Moscow, NIISF, 1979, p.118-119, In Russian. 2 refs.
Walls, Heat transfer, Heat loss, Buildings, Measuring instruments, Computer applications, Test equipment, Laboratory techniques.

35-4064
Instrument for measuring heat flux through enclosures. [Pribor dlia izmereniia teplovykh potokov cherez ograzhdaiushchie konstruktsii],
Gerashchenko, O.A., et al, Stroitel'naia teplofizika (mikroklimat i teploizoliatsiia zdanii) (Construction thermodynamics (microclimate and thermal insulation of buildings)) edited by F.V. Ushkov and V.K. Savin, Moscow, NIISF, 1979, p.127-131, In Russian. 2 refs.
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Walls, Heat loss, Thermal insulation, Buildings, Heat transfer, Measuring instruments.

35-4065
History of permafrost development in Eurasia as exemplified by its regions. [Istoriia razvitiia mnogoletnemerzlykh porod Evrazii (na primere otdel'nykh regionov)],
Mel'nikov, P.I., ed, Moscow, Nauka, 1981, 198p., In Russian with English table of contents. For individual papers see 35-4066 through 35-4082. Refs. passim.
Shores, Permafrost origin, Permafrost distribution, Subsea permafrost, Permafrost transformation, Permafrost thermal properties, Permafrost dating, Pleistocene, History, Geocryology.

35-4066
General principles of the theory of permafrost development. [Obshchie polozheniia teorii razvitiia mnogoletnemerzlykh tolshch].
Kudriavtsev, V.A., Istoriia razvitiia mnogoletnemerzlykh porod Evrazii (na primere otdel'nykh regionov) (History of permafrost development in Eurasia as exemplified by its regions) edited by P.I. Mel'nikov, Moscow, Nauka, 1981, p.7-24, In Russian. 4 refs.
Permafrost origin, Theories, Geocryology, Permafrost depth, Permafrost thermal properties, Permafrost thickness, Permafrost structure, Permafrost distribution, Topographic effects.

35-4067
History of permafrost development in the USSR and methods of its study. [Istoriia razvitiia mnogoletnemerzlykh porod na territorii SSSR i metody ee izucheniia].
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Danilova, N.S., Sukhodol'skaia, L.A.
Permafrost origin, Theories, Geocryology, Permafrost depth, Permafrost thermal properties, Permafrost thickness, Permafrost structure, Permafrost distribution, Topographic effects.

35-4068
Main stages of permafrost development in the northeast European USSR and western Siberia. [Osnovnye etapy razvitiia mnogoletnemerzlykh porod severo-vostoka Evropeiskoĭ chasti SSSR i Zapadnoĭ Sibiri].
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Permafrost origin, Theories, Geocryology, Permafrost thermal properties, Subsea permafrost, Permafrost structure, Permafrost distribution, Permafrost thickness, Bibliographies.

35-4069
History of permafrost development in the Timan-Ural area. [Istoriia formirovaniia merzloĭ zony Timano-Ural'skoĭ oblasti].
Oberman, N.G., Istoriia razvitiia mnogoletnemerzlykh porod Evrazii (na primere otdel'nykh regionov) (History of permafrost development in Eurasia as exemplified by its regions) edited by P.I. Mel'nikov, Moscow, Nauka, 1981, p.60-73, In Russian. 21 refs.
Permafrost distribution, Permafrost origin, Geocryology, Permafrost structure, Ground ice, Permafrost thickness, Paleoclimatology, Subsea permafrost, Permafrost transformation, USSR—Timanskiy Kryazh, USSR—Ural Mountains.

35-4070
History of permafrost formation in the Polar, Subpolar and Northern Ural Mountains. [Istoriia formirovanna mnogoletnemerzlykh porod Poliarnogo, Pripoliarnogo i Severnogo Urala].
Oberman, N.G., Istoriia razvitiia mnogoletnemerzlykh porod Evrazii (na primere otdel'nykh regionov) (History of permafrost development in Eurasia as exemplified by its regions) edited by P.I. Mel'nikov, Moscow, Nauka, 1981, p.73-78, In Russian. 6 refs.
Paleoclimatology, Paleoecology, Permafrost origin, Permafrost distribution, Ground ice, Permafrost hydrology, Polar regions, USSR—Ural Mountains.

35-4071
Reconstruction of air temperature of the climatic optimum in West Siberia on the basis of investigations of permafrost composition and thickness. [Rekonstruktsiia temperatury vozdukha klimaticheskogo optimuma Zapadnoĭ Sibiri na osnove izucheniia stroeniia i moshchnosti mnogoletnemerzlykh porod].
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Belopukhova, E.B., Kaplina, T.N.
Paleoclimatology, Air temperature, Permafrost distribution, Permafrost structure, Permafrost thickness.

35-4072
Yamal Peninsula. [Poluostrov Iamal].
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Ryzhov, V.N., Sobolev, V.V.
Permafrost origin, Arctic landscapes, Tundra, Shores, Continuous permafrost, Ground ice, Permafrost structure, Subsea permafrost, Permafrost hydrology, Thermokarst, History, USSR—Yamal Peninsula.

35-4073
Peculiarities of permafrost development in the Taz Peninsula in the Upper Pleistocene-Holocene. [Osobennosti razvitiia mnogoletnemerzlykh porod Tazovskogo poluostrova v verkhnepleistotsen-golotsenovoe vremia].
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Permafrost origin, Arctic landscapes, Tundra, Permafrost distribution, Pleistocene, Paleoclimatology, Permafrost hydrology, Ground ice, Permafrost structure, History, USSR—Taz Peninsula.

35-4074
Central part of the Sibirskiye Uvaly swamps. [Tsentral'naia chast' Sibirskikh Uvalov].
Shamanova, I.I., Istoriia razvitiia mnogoletnemerzlykh porod Evrazii (na primere otdel'nykh regionov) (History of permafrost development in Eurasia as exemplified by its regions) edited by P.I. Mel'nikov, Moscow, Nauka, 1981, p.97-101, In Russian. 4 refs.
Swamps, Paleoclimatology, Peat, Permafrost distribution, Degradation, Permafrost origin, Thermokarst, Permafrost hydrology, Ground ice, Permafrost structure, Frozen rock temperature, USSR—Sibirskiye Uvaly.

35-4075
Regularities of the development of cryogenic processes in relation to changes in paleogeographic conditions (Upper Pleistocene and Holocene of Yakutia, Transbaikal and Mongolia). [Nekotorye zakonomernosti razvitiia kriogennykh protsessov v sviazi s izmeneniiami paleogeograficheskoĭ obstanovki (verkhniĭ pleistotsen i golotsen Iakutii, Zabaĭkal'ia i Mongolii)].
Gravis, G.F., Istoriia razvitiia mnogoletnemerzlykh porod Evrazii (na primere otdel'nykh regionov) (History of permafrost development in Eurasia as exemplified by its regions) edited by P.I. Mel'nikov, Moscow, Nauka, 1981, p.102-113, In Russian. 22 refs.
Permafrost origin, Permafrost structure, Ground ice, Paleoclimatology, Geocryology, Thermokarst, Pleistocene, History, USSR—Yakutia, USSR—Transbaikal, Mongolia.

35-4076
Permafrost dynamics in Transbaikal at the end of the Late Pleistocene-Holocene. [Dinamika mnogoletnemerzlykh porod v Zabaĭkal'e na protiazhenii kontsa *pozdnego pleistotsena-golotsena*].
Lakhtina, O.V., et al, Istoriia razvitiia mnogoletnemerzlykh porod Evrazii (na primere otdel'nykh regionov) (History of permafrost development in Eurasia as exemplified by its regions) edited by P.I. Mel'nikov, Moscow, Nauka, 1981, p.133-125, In Russian. 33 refs.
Sukhodol'skaia, L.A.
Pleistocene, Paleoclimatology, Permafrost transformation, Permafrost distribution, Charts, Permafrost depth, Permafrost thickness, History, Snow cover effect, Topographic effect, USSR—Transbaikal.

35-4077
Paleogeographic conditions of formation and cryogenic structure of the Late Pleistocene alluvium in the upper Amur River basin and adjacent areas. [Paleogeograficheskie usloviia formirovaniia i cherty kriogennogo stroeniia pozdnepleistotsenovogo alliuvia bassein verkhnego Amura i rnada sopredel'nykh territoriĭ].
Kostiaev, A.G., et al, Istoriia razvitiia mnogoletnemerzlykh porod Evrazii (na primere otdel'nykh regionov) (History of permafrost development in Eurasia as exemplified by its regions) edited by P.I. Mel'nikov, Moscow, Nauka, 1981, p.126-153, In Russian. Refs. p.150-153.
River basins, Permafrost dating, Alluvium, Paleobotany, Cryogenic structures, Radioactive age determination, Pleistocene, History, USSR—Amur River.

35-4078
History of Late Cenozoic permafrost in Central Yakutia. [Istoriia merzlykh tolshch Severnoĭ Iakutii v pozdnem Kainozoe].
Kaplina, T.N., Istoriia razvitiia mnogoletnemerzlykh porod Evrazii (na primere otdel'nykh regionov) (History of permafrost development in Eurasia as exemplified by its regions) edited by P.I. Mel'nikov, Moscow, Nauka, 1981, p.153-181, In Russian. Refs. p.178-181.
Permafrost origin, Permafrost thickness, Stratigraphy, Permafrost structure, Ground ice, Ice wedges, Loess, Geocryology, Permafrost distribution, USSR—Yakutia.

35-4079
Development of the cryolithozone in the East Siberian and Chukchi Seas during the Pleistocene and Holocene. [Razvitie kriolitozony Vostochno-Sibirskogo i Chukotskogo morei v pleistotsene i golotsene].
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Permafrost origin, Permafrost distribution, Subsea permafrost, Water temperature, Bottom sediment, Frozen ground temperature, Air water interactions, Air temperature, Chukchi Sea.

35-4080
Modeling nitrogen transport and transformations in soils: 2. Validation.
Iskandar, I.K., et al, *Soil science*, May 1981, 131(5), MP 1441, p.303-312, 12 refs. For Pt. 1 see 35-4081.
Selim, H.M.
Soil chemistry, Nutrient cycle, Transformations, Waste treatment, Water treatment, Ions, Models, Nitrogen.
The nitrogen model described in Part 1 was evaluated using experimental data from a greenhouse lysimeter study for two soils, Windsor sandy loam and Charlton silt loam. Secondary treated waste water was applied to each soil at the rate of 3.8 centimeters twice weekly for 25 weeks. Furthermore, (15) N-enriched NH_4 cation-N was applied, at the beginning of the experiment, in one waste water application. A mixture of grasses was grown on each lysimeter and was harvested every 2 to 4 weeks. Solution samples were collected and analyzed for N, and the soil water pressure head was monitored frequently at different soil depths. Model predictions agreed well with pressure head data with depth and time, as well as gravimetrically determined soil water content with depth for the two soils. (Auth. mod.)

35-4081
Modeling nitrogen transport and transformations in soils: 1. Theoretical considerations.
Selim, H.M., et al, *Soil science*, Apr 1981, 131(4), MP 1440, p.233-241, 24 refs. For Pt. 2 see 34-4080.
Iskandar, I.K.
Soil chemistry, Nutrient cycle, Transformations, Soil water, Water flow, Waste treatment, Water treatment, Mathematical models.
A numerical model was developed to simulate water and nitrogen transport and transformations through water-unsaturated multilayered soil profiles. The nitrogen transformation processes considered were nitrification, denitrification, immobilization, mineralization, and ionic exchange of ammonium. Plant uptakes of water and nitrogen were also included. An explicit-implicit finite difference approximation method was used to solve the nitrogen transport and transformation equations simultaneously with the water flow equation. Model evaluation and sensitivity analysis for a wide range of values for the rate of nitrification, distribution coefficient for ammonium exchange, and rate of N uptake were investigated. (Auth.)

35-4082
Microband fabric in seasonally frozen soils.
Mermut, A.R., et al, *Soil Science Society of America Journal*, May-June 1981, 45(3), p.578-586, 20 refs.
St. Arnaud, R.J.
Seasonal freeze thaw, Soil freezing, Soil composition, Soil texture, Microstructure, Frost action, Fines, Sands, X ray analysis.

35-4083
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Gordon, J.E., *Arctic and alpine research*, Feb 1981, 13(1), p.47-62, 25 refs.
Glacier oscillation, Cirque glaciers, Lichens, Ice dating.

35-4084
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McCann, S.B.
Icebound lakes, Ice dams, Drainage, Subglacial caves, Ice shelves, Water temperature, Water level, Hydrology.

35-4085
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Glacial lakes, Sedimentation, Bottom sediment, Meltwater, Sediment transport, Drill core analysis.

35-4086
Field measurements of growth and phosphate absorption in *Carex aquatilis* along a latitudinal gradient.
Chapin, F.S., III, *Arctic and alpine research*, Feb. 1981, 13(1), p.83-94, Refs. p.92-94.
Tundra, Soil chemistry, Nutrient cycle, Vegetation, Swamps.

35-4087
Alpine mass movement forms (noncatastrophic): classification, description, and significance.
White, S.E., *Arctic and alpine research*, May 1981, 13(2), p.127-137, 30 refs.
Slope processes, Talus, Rock glaciers, Avalanche deposits.

35-4088
Some nonsorted patterned ground types in northern Canada.
Zoltai, S.C., et al, *Arctic and alpine research*, May 1981, 13(2), p.139-151, 28 refs.
Tarnocai, C.
Mudflows, Patterned ground, Periglacial processes, Permafrost physics, Surface properties, Soil texture.

35-4089
Late Holocene and present-day vegetation, Prudhoe Bay and Atigun River, Alaskan arctic slope.
Walker, D.A., et al, *Arctic and alpine research*, May 1981, 13(2), p.153-172, Refs. p.170-172.
Short, S.K., Andrews, J.T., Webber, P.J.
Tundra, Peat, Vegetation, Pollen, Palynology, Paleoclimatology, United States—Alaska—Prudhoe Bay.

35-4090
Transport and deposition of leaves and seeds on tundra: a Late-Glacial analog.
Glaser, P.H., *Arctic and alpine research*, May 1981, 13(2), p.173-182, 42 refs.
Tundra, Vegetation, Migration, Distribution, Snow cover, Snowmelt, Glacial lakes.

35-4091
Late-Neoglacial histories of the Agassiz and Jackson Glaciers, Glacier National Park, Montana.
Carrara, P.E., et al, *Arctic and alpine research*, May 1981, 13(2), p.183-196, 33 refs.
McGimsey, R.G.
Glacier oscillation, Ice dating, Climatic changes.

35-4092
Deposition of multiple lodgment tills by competing glacial flows in a common ice sheet.
Broster, B.E., et al, *Arctic and alpine research*, May 1981, 13(2), p.197-204, 4 refs
Dreimanis, A.
Glacier flow, Glacial deposits, Ice sheets.

35-4093
Some aspects of plant water relations in Alaskan arctic tundra species.
Oberbauer, S., et al, *Arctic and alpine research*, May 1981, 13(2), p.205-218, 20 refs.
Miller, P.C.
Tundra, Vegetation, Water content, Plants (botany), Growth.

35-4094
Effects of surface dust on snowmelt rates.
Drake, J.J., *Arctic and alpine research*, May 1981, 13(2), p.219-223, 14 refs.
Snowmelt, Dust, Albedo, Snow surface, Solar radiation, Wind velocity, Mathematical models.

35-4095
Occurrence of ice layers at the base of high arctic snowpacks.
Woo, M.-K., et al, *Arctic and alpine research*, May 1981, 13(2), p.225-230, 6 refs
Heron, R.
Ice growth, Snow cover, Snow ice interface, Meltwater, Freezing, Latent heat, Active layer, Thermal regime.

35-4096
Use of the ice channeling plow for the prevention of ice barrages.
Tsykin, E.N., *Canada. Defence Research Board Translation*, Oct. 1970, T 543 R, 6p., AD-714 413, For Russian original see 25-1442. 8 refs.
Ice jams, Ice breaking, Ice control, River ice, Equipment.

35-4097
Water regime of cereal grasses in Yakutia. {Vodnyĭ rezhim zernovykh rasteniĭ v IAkutii},
Grigor'eva, D.V., et al, Novosibirsk, Nauka, 1981, 145p., In Russian with English table of contents enclosed. Refs. p.131-144.
Stepanov, G.N.
Grasses, Cryogenic soils, Active layer, Permafrost depth, Plant physiology, Biomass, Soil water, Soil composition, Nutrient cycle.

35-4098
Decorative plants for landscaping residential areas in Yakutia. {Dekorativnye rastenila dlia ozeleneniia naselennykh punktov IAkutiĭ},
Krotova, Z.E., ed, Yakutsk, IAkutskiĭ filial SO AN SSSR, 1980, 106p., In Russian. For selected papers see 35-4099 through 35-4103. Refs passim
Introduced plants, Landscape types, Cryogenic soils, Permafrost depth, Active layer, Trees (plants), Grasses, Roots, Plant ecology, Plant physiology.

35-4099
Testing decorative plants introduced in Yakutia. {Rezul'taty introduktsionnykh ispytaniĭ dekorativnykh rasteniĭ v IAkutiĭ},
Krotova, Z.E., Dekorativnye rastenila dlia ozeleneniia naselennykh punktov IAkutii (Decorative plants for landscaping residential areas in Yakutia) edited by Z.E. Krotova, Yakutsk, IAkutskiĭ filial SO AN SSSR, 1980, p.4-14, In Russian. 33 refs.
Introduced plants, Cryogenic soils, Permafrost depth, Grasses, Trees (plants).

35-4100
Promising decorative shrubs in the Yakut Botanical Garden. {Perspektivnye dekorativnye kustarniki v IAkutskom botanicheskom sadu},
Nazarova, E.I., Dekorativnye rastenila dlia ozeleneniia naselennykh punktov IAkutii (Decorative plants for landscaping residential areas in Yakutia) edited by Z.E. Krotova, Yakutsk, IAkutskiĭ filial SO AN SSSR, 1980, p.15-24, In Russian. 12 refs
Introduced plants, Cryogenic soils, Permafrost depth, Active layer, Landscape types.

35-4101
Root systems of trees and shrubs introduced in Yakutia. {Kornevye sistemy drevesnykh i kustarnikovykh rasteniĭ pri introduktsii v IAkutiĭ},
Dokhunaev, V.N., Dekorativnye rastenila dlia ozeleneniia naselennykh punktov IAkutii (Decorative plants for landscaping residential areas in Yakutia) edited by Z.E. Krotova, Yakutsk, IAkutskiĭ filial SO AN SSSR, 1980, p.25-32, In Russian. 28 refs.
Introduced plants, Trees (plants), Roots, Cryogenic soils, Active layer, Permafrost depth.

35-4102
Using the Daurskaya larch in landscaping. {Ispol'zovanie listvennitsy daurskoĭ v ozelenenii},
Timofeev, P.A., Dekorativnye rastenila dlia ozeleneniia naselennykh punktov IAkutii (Decorative plants for landscaping residential areas in Yakutia) edited by Z.E. Krotova, Yakutsk, IAkutskiĭ filial SO AN SSSR, 1980, p.59-63, In Russian. 8 refs.
Forest soils, Cryogenic soils, Trees (plants), Roots, Introduced plants, Plant ecology, Active layer, Permafrost depth.

35-4103
Using trees and shrubs in the landscaping of Yakutsk. {Vnedrenie drevesnykh i kustarnikovykh porod v ozelenenie goroda IAkutska},
Kornienko, V.A., Dekorativnye rastenila dlia ozeleneniia naselennykh punktov IAkutii (Decorative plants for landscaping residential areas in Yakutia) edited by Z.E. Krotova, Yakutsk, IAkutskiĭ filial SO AN SSSR, 1980, p.64-69, In Russian. 9 refs.
Introduced plants, Cryogenic soils, Permafrost depth, Plants (botany), Roots.

35-4104
Timan-Pechora regional industrial complex. {Timano-Pechorskiĭ territorial'no-proizvodstvennyĭ kompleks},
Podoplelov, V.P., ed, Syktyvkar, 1979, 144p., In Russian. For selected papers see 35-4105 through 35-4107. Refs passim.
Electric power, Engines, Hydraulic structures, Buildings, Dams, Construction equipment, Transportation, Environmental protection, Human factors engineering, Polar regions, Subpolar regions, Economic development, Economic analysis, Work time standards.

35-4105
Development of power engineering in the northeast European USSR. {Problemy razvitiia energetiki na evropeĭskom Severo-Vostoke SSSR},
Kalinina, A.A., Timano-Pechorskiĭ territorial'no-proizvodstvennyĭ kompleks (Timan-Pechora regional industrial complex) edited by V.P. Podoplelov, Syktyvkar, 1979, p.68-75, In Russian. 3 refs.
Electric power, Engines, Hydraulic structures, Subpolar regions, Economic analysis, Construction equipment, Cost analysis, Buildings.

35-4106
Development of a regional transportation system. {Formirovanie raionnoĭ transportnoĭ sistemy},
Kuratova, E.S., Timano-Pechorskiĭ territorial'no-proizvodstvennyĭ kompleks (Timan-Pechora regional industrial complex) edited by V.P. Podoplelov, Syktyvkar, 1979, p.95-102, In Russian.
Transportation, Pipelines, Subpolar regions, Airplanes, Motor vehicles, Roads, Navigation, Economic analysis, Project planning, Load control.

35-4107
Natural complex of the Timan-Pechora region and its environmental protection. {Prirodnyĭ kompleks Timano-Pechorskogo regiona i voprosy okhrany okruzhaiushcheĭ sredy},
Gladkov, V.P., Timano-Pechorskiĭ territorial'no-proizvodstvennyĭ kompleks (Timan-Pechora regional industrial complex) edited by V.P. Podoplelov, Syktyvkar, 1979, p.133-140, In Russian. 8 refs.
Environmental protection, Subpolar regions, Tundra, Forest tundra, Economic development, Human factors engineering.

35-4108
Technical progress and production rate in the North (exemplified by the Yakut ASSR). {Tekhnicheskiĭ progress i effektivnost' proizvodstva na Severe (na primere IAkutskoĭ ASSR)},
Egorov, E.G., ed, Yakutsk, Izd-vo Yakutskogo filiala SO AN SSSR, 1978, 162p., In Russian. For selected papers see 35-4109 through 35-4116. Refs. passim.
Regional planning, Economic development, Production engineering, Cost analysis, Industrial buildings, Construction equipment, Mining.

35-4109
Economic problems of regional technical policy in the North. {Ekonomicheskie problemy regional'noĭ tekhnicheskoĭ politiki na Severe},
Egorov, E.G., Tekhnicheskiĭ progress i effektivnost' proizvodstva na Severe (na primere IAkutskoĭ ASSR (Technical progress and production rate in the North (exemplified by the Yakut ASSR) edited by E.G. Egorov, Yakutsk, Izd-vo Yakutskogo filiala SO AN SSSR, 1978, p.3-14, In Russian. 7 refs.
Economic development, Regional planning, Production engineering.

35-4110
Evaluation of regional scientific and technical progress based on a system of indices. {Ob otsenke effektivnosti regional'nogo nauchno-tekhnicheskogo progressa na osnove sistemy pokazateleĭ},
Vlasov, V.I., Tekhnicheskiĭ progress i effektivnost' proizvodstva na Severe (na primere IAkutskoĭ ASSR) (Technical progress and production rate in the North (exemplified by the Yakut ASSR)) edited by E.G. Egorov, Yakutsk, Izd-vo Yakutskogo filiala SO AN SSSR, 1978, p.15-23, In Russian. 5 refs.
Subpolar regions, Economic development, Regional planning, Production engineering, Construction equipment, Transportation, Mining.

35-4111
Evaluating the effectiveness of modern technical equipment in the North. [Voprosy metodiki otsenki ekonomicheskoĭ effektivnosti novoĭ tekhniki v usloviiakh Severa],
Skrybykin, A.N., Tekhnicheskiĭ progress i effektivnost' proizvodstva na Severe (na primere IAkutskoĭ ASSR) (Technical progress and production rate in the North (exemplified by the Yakut ASSR)) edited by E.G. Egorov, Yakutsk, Izd-vo Yakutskogo filiala SO AN SSSR, 1978, p.24-31, In Russian. 3 refs.
Work time standards, Construction equipment, Motor vehicles, Regional planning, Production engineering, Economic analysis.

35-4112
Role of scientific-technical progress in development of natural resources of the North. [Rol' nauchno-tekhnicheskogo progressa v osvoenii prirodnykh resursov Severa],
Vdovina, L.I., Tekhnicheskiĭ progress i effektivnost' proizvodstva na Severe (na primere IAkutskoĭ ASSR) (Technical progress and production rate in the North (exemplified by the Yakut ASSR)) edited by E.G. Egorov, Yakutsk, Izd-vo Yakutskogo filiala SO AN SSSR, 1978, p.32-38, In Russian. 5 refs.
Economic development, Cost analysis, Natural resources, Production engineering, Mining, Petroleum industry, Transportation, Construction equipment, Ice (construction material).

35-4113
Combined mining exploration for construction materials in southern Yakutia. [O kompleksnoĭ razvedke mineral'no-syr'evykh resursov dlia proizvodstva stroitel'nykh materialov v IUzhnoĭ IAkutii],
Krivoshapkin, A.I., et al, Tekhnicheskiĭ progress i effektivnost' proizvodstva na Severe (na primere IAkutskoĭ ASSR) (Technical progress and production rate in the North (exemplified by the Yakut ASSR)) edited by E.G. Egorov, Yakutsk, Izd-vo Yakutskogo filiala SO AN SSSR, 1978, p.68-71, In Russian. 1 ref.
Nogovitsyn, R.R.
Natural resources, Mining, Construction materials, Concrete aggregates, Cements, Masonry.

35-4114
Comparative effectiveness of pneumatic tube transportation in mines in southern Yakutia. [O sravnitel'noĭ effektivnosti vnedreniia truboprovodnogo pnevmokontĕĭnernogo transporta na gornykh predpriiatiiakh IUzhnoĭ IAkutii],
Alekseev, P.E., et al, Tekhnicheskiĭ progress i effektivnost' proizvodstva na Severe (na primere IAkutskoĭ ASSR) (Technical progress and production rate in the North (exemplified by the Yakut ASSR)) edited by E.G. Egorov, Yakutsk, Izd-vo Yakutskogo filiala SO AN SSSR, 1978, p.72-80, In Russian. 5 refs.
Grigor'ev, V.P., Efremov, E.I., Pavlov, V.R.
Mining, Transportation, Pneumatic tubes.

35-4115
Lowering construction cost of pile foundations for residential buildings in Yakutsk. [Rezervy snizheniia zatrat na vozvedenie svaĭnykh fundamentov zhilykh domov v IAkutske],
Kopysov, N.S., et al, Tekhnicheskiĭ progress i effektivnost' proizvodstva na Severe (na primere IAkutskoĭ ASSR) (Technical progress and production rate in the North (exemplified by the Yakut ASSR)) edited by E.G. Egorov, Yakutsk, Izd-vo Yakutskogo filiala SO AN SSSR, 1978, p.101-106, In Russian. 4 refs.
Kolosova, A.F., Tsarev, V.T.
Residential buildings, Foundations, Piles, Permafrost beneath structures, Cost analysis.

35-4116
Effectiveness of road facilities in Yakutia. [Effektivnost' obustroĭstva avtomobil'nykh dorog v IAkutii],
Shtyrev, I.N., Tekhnicheskiĭ progress i effektivnost' proizvodstva na Severe (na primere IAkutskoĭ ASSR) (Technical progress and production rate in the North (exemplified by the Yakut ASSR)) edited by E.G. Egorov, Yakutsk, Izd-vo Yakutskogo filiala SO AN SSSR, 1978, p.112-114, In Russian.
Roads, Pavements, Snow roads, Ice roads, Winter maintenance, Permafrost beneath roads.

35-4117
Organization of spruce ecosystems in southern taiga. [Organizatsiia ekosistem el'nikov iuzhnoĭ taĭgi],
Isakov, IU.A., ed. Moscow, 1979, 220p., In Russian with English table of contents and summary. For selected papers see 35-4118 through 35-4125. Refs passim.
Bazilevich, N.I., ed.
Taiga, Forest canopy, Forest soils, Plant ecology, Ecosystems, Landscape types, Biomass, Litter, Human factors, Forest fires, Revegetation, Forestry, Microclimatology.

35-4118
Structure and functions of spruce forest biota in the *southern taiga of Valday.* [*Struktura i osobennosti* funktsionirovaniia bioty el'nikov iuzhnoĭ taĭgi Valdaia],
Glazov, M.V., Organizatsiia ekosistem el'nikov iuzhnoĭ taĭgi (Organization of spruce ecosystems in southern taiga) edited by IU.A. Isakov and N.I. Bazilevich, Moscow, 1979, p.10-29, In Russian. 23 refs.
Taiga, Forest soils, Forest canopy, Soil temperature, Litter, Biomass, Freeze thaw cycles, Soil water, Plant ecology, Ecosystems.

35-4119
Natural and man-induced dynamics of Valday spruce forests. [Estestvennaia i antropogennaia dinamika elovykh lesov Valdaia],
Tishkov, A.A., Organizatsiia ekosistem el'nikov iuzhnoĭ taĭgi (Organization of spruce ecosystems in southern taiga) edited by IU.A. Isakov and N.I. Bazilevich, Moscow, 1979, p.30-69, In Russian. Refs p.67-69.
Taiga, Forest soils, Biomass, Plant ecology, Ecosystems, Human factors, Forest fires, Revegetation.

35-4120
Microclimate and transpiration of soddy semipodsolic soils of Picea-Oxalis forests. [Mikroklimat i dykhanie dernovo-skrytopodzolistykh pochv el'nikov-kislichnikovy],
Grishina, L.A., et al, Organizatsiia ekosistem el'nikov iuzhnoĭ taĭgi (Organization of spruce ecosystems in southern taiga) edited by IU.A. Isakov and N.I. Bazilevich, Moscow, 1979, p.70-85, In Russian. 18 refs.
Okuneva, R.M., Vladychenskiĭ, A.S.
Taiga, Forest soils, Podsol, Microclimatology, Soil water migration, Plant physiology, Transpiration.

35-4121
Dynamics of chemical composition of soil solutions and lysimetric waters in spruce forests. [Dinamika khimicheskogo sostava pochvennykh rastvorov i lizimetricheskikh vod v el'nikakh],
Grishina, L.A., et al, Organizatsiia ekosistem el'nikov iuzhnoĭ taĭgi (Organization of spruce ecosystems in southern taiga) edited by IU.A. Isakov and N.I. Bazilevich, Moscow, 1979, p.86-104, In Russian. 21 refs.
Vladychenskiĭ, A.S., Okuneva, R.M.
***Taiga, Forest soils, Soil water migration,* Water chemistry, Chemical composition, Seasonal variations.**

35-4122
Natural revegetation in Valday spruce forests. [Estestvennoe vozobnovlenie eli v elovykh lesakh Valdaia],
Kazanskaia, N.S., et al, Organizatsiia ekosistem el'nikov iuzhnoĭ taĭgi (Organization of spruce ecosystems in southern taiga) edited by IU.A. Isakov and N.I. Bazilevich, Moscow, 1979, p.158-175, In Russian. 17 refs.
Soboleva, T.K., Tishkov, A.A.
Taiga, Revegetation, Forestry, Plant physiology, Forest soils, Litter.

35-4123
Influence of fallen spruce trunks on properties of sandy semipodsolic soils. [Vliianie otmershikh stvolov el'an na ne[illegible]rye svoĭstva neskhanykh skrytopodzolistykh p[illegible]],
Grigor'ev, A.IU., Organizatsiia ekosistem el'nikov iuzhnoĭ taĭgi (Organization of spruce ecosystems in southern taiga) edited by IU.A. Isakov and N.I. Bazilevich, Moscow, 1979, p.176-184, In Russian. 7 refs.
Taiga, Forest soils, Podsol, Soil composition.

35-4124
Evaluating the variations of water balance elements in coniferous forests due to forest use and maintenance. [Otsenka izmeneniĭ elementov vodnogo balansa v khvoĭnykh lesakh pod vliianiem lesokhozĭaĭstvennykh meropriiatiĭ],
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Marunich, S.V.
Taiga, Forest soils, Forestry, Revegetation, Plant physiology, Lumbering, Heat balance, Water balance, Evaporation, Snow cover effect.

35-4125
Transition zone between forest and swamp landscapes in the Lake Valday region. [Osobennosti perekhodnoĭ zony mezhdu lesnym i bolotnym landshaftami v oblasti Valdaĭskogo Poozer'ia],
Armand, A.D., Organizatsiia ekosistem el'nikov iuzhnoĭ taĭgi (Organization of spruce ecosystems in southern taiga) edited by IU.A. Isakov and N.I. Bazilevich, Moscow, 1979, p.194-213, In Russian. 4 refs.
***Taiga, Ecosystems, Paludification, Landscape types,* Plant ecology, Mosses, Soil water.**

35-4126
New idea to solve storage/transport problems without pipe lines. *Ocean industry*, May 1931, 16(5), p.33-35
Hydraulic structures, Offshore structures, Storage tanks, Oil storage.

35-4127
Transverse mixing tests in natural streams.
Beltaos, S., *American Society of Civil Engineers. Hydraulics Division. Journal.* Oct. 1980, 106(HY10), p.1607-1625, 18 refs.
Streams, Ice conditions, Water pollution, Water flow, Tests.

35-4128
Soil and permafrost surveys in the Arctic.
Linell, K.A., et al, Oxford, Clarendon Press, 1981, 279p., Refs. p.255-263.
Tedrow, J.C.F.
Permafrost physics, Soil surveys, Seasonal freeze thaw, Hydrology, Thermal regime, Soil mechanics, Frost heave, Permafrost thermal properties.

35-4129
Problems of the Arctic and the Antarctic, collection of articles; Vol. 48, 1976.
Treshnikov, A.F., ed, New Delhi, Amerind Publishing Co., 1981, 173p., TT 77-52011. Translation of Problemy Arktiki i Antarktiki, sbornik statei; vyp 48, 1976. Refs. passim. For individual articles see 35-4130 through 35-4135, or I-25081, I-25083, I-25084, and J-25082.
Water flow, Sea ice distribution, Ice forecasting, Mathematical models, Meetings, Wind factors, Heat balance, Air temperature, Polynyas, Bering Sea, Chukchi Sea.
This publication presents the results of investigations carried out by young scientists of the Arctic and Antarctic Scientific Research institute on problems of polar hydrometeorology, geomorphology, and geophysics. It contains reports read at the fourth annual conference of young specialists of the AANII held on December 24-25, 1973 at Leningrad. The collection deals with a wide range of problems relating to the hydrometeorological regime of the Arctic and the Antarctic, absorption of radio waves in the ionosphere and magnetic activity in the Arctic during magnetospheric substorms. Problems of the nonlinear mechanics of hydrometeorological elements and the geomorphology of northeastern Taimyr are considered. Original installations and instruments for hydrometeorological research are described. (Auth.)

35-4130
Calculation of air temperature in numerical models of redistribution of ice.
Appel', I.L., Problems of the Arctic and the Antarctic, collection of articles; Vol 48, 1976, New Delhi, Amerind Publishing Co., 1981, p.23-28, TT 77-52011, 2 refs. For Russian original see 31-1825.
Sea ice distribution, Ice forecasting, Mathematical models, Air temperature.

35-4131
On the possibility of determining water exchange of the Arctic Basin caused by wind over it.
Gusarova, S.P., Problems of the Arctic and the Antarctic, collection of articles; Vol 48, 1976, New Delhi, Amerind Publishing Co., 1981, p.40-51, TT 77-52011, 4 refs. For Russian original see 31-1826.
Wind factors, Water balance, Water flow, Mathematical models.

35-4132
Method of determining water exchange of the Arctic Basin with a random wind field: barotropic model.
Gusarova, S P , Problems of the Arctic and the Antarctic, collection of articles, Vol 48, 1976, New Delhi, Amerind Publishing Co., 1981, p.52-59, TT 77-52011, 3 refs. For Russian original see 31-1827.
Water balance, Water flow, Wind factors, Mathematical models.

35-4133
Set of instruments for determining the elements of the heat balance of the surface layer of the atmosphere.
Makshtas, A.P , Problems of the Arctic and the Antarctic, collection of articles, Vol. 48, 1976, New Delhi, Amerind Publishing Co., 1981, p.71-74, TT 77-52011, 6 refs. For Russian original see 31-1828.
Air temperature, Heat balance, Measuring instruments.

35-4134
Salinity and thermal state of Bering Sea waters as indices of development of the Chukchi flaw lead in June.
Arikainen, A.I., Problems of the Arctic and the Antarctic, collection of articles, Vol. 48, 1976, New Delhi, Amerind Publishing Co , 1981, p.75-82, TT 77-52011, 16 refs. For Russian original see 31-1829.
Polynyas, Sea ice distribution, Ice forecasting, Sea water, Salinity, Water temperature, Chukchi Sea, Bering Sea.

35-4135
Influence of degree of hydrophoby of external surface on the operational thermal regime of current-conducting deicing coating.
Avrutov, E.A., Problems of the Arctic and the Antarctic, collection of articles, Vol. 48, 1976, New Delhi, Amerind Publishing Co., 1981, p.90-101, TT 77-52011, 7 refs. Translated from Problemy Arktiki i Antarktiki, vol. 48, 1976, p.75-84.
Sea spray, Ship icing, Ice prevention, Coatings, Thermal conductivity, Heat transfer.

35-4136
Eastern Bering Sea shelf: oceanography and resources.
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Calder, J.A., ed.
Sea ice distribution, Ice conditions, Oceanography, Oil spills, Sedimentation.

35-4137
Recent fluctuations in sea ice distribution in the eastern Bering Sea.
Niebauer, H.J., Eastern Bering Sea shelf: oceanography and resources. Edited by D.W. Hood and J.A. Calder, Washington D.C., U.S. Department of Commerce, (1980), p.133-140, 14 refs.
Sea ice distribution, Ice edge, Water temperature, Air temperature, Wind factors, Bering Sea.

35-4138
Remote sensing analysis of ice growth and distribution in the eastern Bering Sea.
McNutt, S.L., Eastern Bering Sea shelf: oceanography and resources. Edited by D W Hood and J.A. Calder, Washington D C , U S Department of Commerce, (1980), p.141-165, 20 refs.
Sea ice distribution, Ice growth, Ice conditions, Ice cover thickness, Ice edge, Ice floes, Remote sensing, Bering Sea.

35-4139
Nearshore ice characteristics in the eastern Bering Sea.
Stringer, W.J., Eastern Bering Sea shelf: oceanography and resources. Edited by D W. Hood and J A Calder, Washington D C , U S Department of Commerce, (1980), p.167-187, 15 refs.
Sea ice distribution, Fast ice, Ice conditions, Ice edge, Remote sensing, Mapping, Seasonal variations, Bering Sea.

35-4140
Bering Sea ice-edge phenomena.
Martin, S., et al, Eastern Bering Sea shelf: oceanography and resources. Edited by D.W. Hood and J.A. Calder, Washington D.C., U.S. Department of Commerce, (1980), p.189-211, 12 refs.
Bauer, J.
Sea ice, Ice edge, Ocean waves, Wind factors, Ice floes, Bering Sea.

35-4141
Eastern Bering Sea ice dynamics and thermodynamics.
Pease, C H., Eastern Bering Sea shelf: oceanography and resources Edited by D W Hood and J A Calder, Washington D.C., U.S. Department of Commerce, (1980), p.213-222, 10 refs
Sea ice, Drift, Ice mechanics, Thermodynamics, Ice floes, Ice formation, Wind factors, Ocean waves, Meltwater, Bering Sea.

35-4142
Anticipated oil-ice interactions in the Bering Sea.
Martin, S , Eastern Bering Sea shelf oceanography and resources Edited by D W Hood and J A Calder, Washington D C , U S Department of Commerce, (1980), p.223-243, 9 refs.
Oil spills, Sea ice, Ice formation, Ice floes, Liquid solid interfaces, Remote sensing, Bering Sea.

35-4143
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Larsen, M.C , et al, Eastern Bering Sea shelf: oceanography and resources Edited by D.W. Hood and J A Calder, Washington D.C., U.S. Department of Commerce, (1980), p.247-261, 32 refs.
Nelson, C.H., Thor, D.R.
Sedimentation, Bottom sediment, Ice scoring, Erosion, Storms, Bering Sea.

35-4144
Ice-dominated regimen of Norton Sound and adjacent areas of the Bering Sea.
Ray, V.M., et al, Eastern Bering Sea shelf: oceanography and resources Edited by D.W. Hood and J.A Calder, Washington D.C , U.S. Department of Commerce, (1980), p.263-278, 15 refs.
Dupré, W.R.
Ice conditions, Sea ice distribution, Drift, Ice formation, Ice breakup, Remote sensing, Bering Sea.

35-4145
Ice gouging on the subarctic Bering shelf.
Thor, D.R., et al, Eastern Bering Sea shelf: oceanography and resources. Edited by D W Hood and J.A Calder, Washington D.C , U S. Department of Commerce, (1980), p.279-302, 31 refs
Nelson, C.H.
Ice scoring, Bottom sediment, Sea ice, Ice mechanics, Ice solid interface, Bering Sea.

35-4146
Some geochemical characteristics of Bering Sea sediments.
Burrell, D.C., et al, Eastern Bering Sea shelf: oceanography and resources. Edited by D W Hood and J A Calder, Washington D C., U S Department of Commerce, (1980), p.305-319, 41 refs.
Tommos, K., Naidu, A.S., Hoskin, C.M.
Bottom sediment, Chemical composition, Particle size distribution, Primary productivity, Bering Sea.

35-4147
Meteorological and seasonal effects of snow chemistry of Ross Ice Shelf, Antarctica.
Warburton, J.A , et al, *Journal de recherches atmosphériques*, Jan.-Mar 1981, 16(1), p.17-37, In English with French summary. 19 refs.
Cornish, C.R., Molenar, J.V , Owens, M.S., Young, L.G.
Snow cover, Chemical composition, Meteorological factors, Seasonal variations, Antarctica—Ross Ice Shelf.
Snow and firn from seven 2-m and two 5-m pits on the Ross Ice Shelf, Antarctica, were analysed for Na, Mg, Ca, K and beta-activity The concentrations of the elements vary with depth, maximum to minimum values covering ranges of 10 1 Changes in concentration for all four elements are coincident in depth at any one site. When concentrations are highest, elemental ratios are close to sea water values indicating a predominantly marine influence At lower concentrations, ratios are different from sea water and Mg, Ca and K are enriched with respect to Na, suggesting that other aerosol sources (e g crustal) may be contributing a proportionately larger fraction Chemical profile characteristics are highly correlated between sites up to 450 km apart, the regression line slopes providing estimates of ratios of snow accumulations at these sites These ratios agree well with independent estimates based on beta-activity measurements and snow stratigraphy. The changes of chemical concentration with depth are attributed to large seasonal meteorological events which influence substantial geographical areas virtually simultaneously. The results suggest autumn as the principal season for maximum concentrations of oceanic elements, being the period of minimum sea-ice extent also (Auth mod)

35-4148
Levels and composition of the mineral components in ice cores from central Antarctica.
Mikhishanskii, A.Z , et al, *Geochemistry international*, 1980. 17(1), p.152-158, Translation of Geokhimiia, No.2, p.286-293, 1980. 20 refs.
IAkovlev, IU.V., Savel'ev, B.V., Zuev, A.P.
Ice cores, Ice composition, Minerals, Dust, Climatic changes.
Composition and mass results are presented for the mineral phase in the cores from a 500-m borehole drilled in 1970 in central East Antarctica (Vostok station) The level of the mineral component has varied over the range 0 02-0 40 mg/liter over the last 20,000 years and is correlated with variations in climate The upper horizons in the snow cover have higher dust levels than the middle ones during the historical period, but the increase in dust level began more than 5000 years ago, which cannot be due to Man's activities. Also, the levels of Cu, Zn, Sb, Hg, Pb, Se, and other elements in the current material are below the means, which also shows that human sources have had no effect on the global background state of the atmosphere (Auth)

35-4149
Sea ice colored by ice algae in a lagoon, Lake Saroma, Hokkaido, Japan.
Hoshiai, T , et al, *Antarctic record*, Jan. 1981, No.71, p.113-120, 12 refs.
Fukuchi, M.
Colored ice, Algae, Cryobiology.
Coloration of ice algae was studied in Hokkaido, Japan Results are reported and compared with those obtained at Showa Station, Antarctica Findings at the two localities are in good agreement.

35-4150
Thermal interaction between buildings on base fills and frozen soil.
Tishin, V G , *Soil mechanics and foundation engineering*, Nov -Dec. 1980, 17(6), p 240-244, Translated from Osnovaniia, fundamenty i mekhanika gruntov. 5 refs.
Buildings, Foundations, Earth fills, Frost heave, Permafrost beneath structures, Mathematical models.

35-4151
Integral methods of determining the parameters of one-dimensional consolidation.
Bartolomei, A.A , et al. *Soil mechanics and foundation engineering*, Nov -Dec 1980, 17(6), p.250-255, Translated from Osnovaniia, fundamenty i mekhanika gruntov. 4 refs
IUshkov, B.S., Rukavishnikova, N.E.
Fines, Clay soils, Paludification, Pile driving, Foundations.

35-4152
Experimental investigations of the elastic moduli of the soil in a lateral fill.
Fedorovich, D.I., et al, *Soil mechanics and foundation engineering*, Jan.-Feb 1981, 18(1), p.29-31, Translated from Osnovaniia, fundamenty i mekhanika gruntov. 3 refs.
Shchelokov, V.K., Gokhman, M.R.
Permafrost beneath structures, Ground thawing, Thaw depth, Buildings, Design, Standards.

35-4153
Hydraulic method of breaking up frozen soil.
Gol'din, IU.A., et al, *Soil mechanics and foundations engineering*, Jan Feb 1981, 18(1), p.35-38, Translated from Osnovaniia, fundamenty i mekhanika gruntov. 3 refs.
Petrosian, L.R., Smorodinov, M.I.
Earthwork, Permafrost, Frozen ground strength, Excavation, Hydraulic jets.

35-4154
Genesis of burozems and of brown forest and taiga soils similar to them.
Ehwald, E , *Soviet soil science*, Mar.-Apr 1980, Vol.12, p 131-143, Translated from Pochvovedenie, 78 refs.
Taiga, Forest soils, Cryogenic soils, Soil formation, Periglacial processes, Soil composition.

35-4155
Water monomer on the prism face of ice and above a four layer ice basal face ledge: an effective pair potential model.
Hale, B.N , et al, *Journal of chemical physics*, Aug 15, 1981, 75(4), p.1991-1995, 6 refs.
Kiefer, J., Ward, C.A.
Ice water interface, Surface energy, Molecular energy levels, Absorption, Ice nuclei, Nucleating agents, Surface properties, Models, Prisms.

35-4156
Estimating intensity of atmospheric ice accretion on stationary structures.
Makkonen, L., *Journal of applied meteorology*, May 1981, 20(5), p.595-600, 18 refs.
Ice accretion, Structures, Icing, Ice growth, Glaze, Air temperature, Wind velocity, Analysis (mathematics).

35-4157
Interface study of rubber-ice friction.
Roberts, A.D., et al, *Wear*, 1981, Vol 67, p.55-69, 31 refs
Richerdson, J.C.
Rubber ice friction, Melting points, Road icing, Surface roughness, Temperature effects.

35-4158
Scattering of light by ice crystals.
Volkovitskii, O.A., et al, *Akademiia nauk SSSR. Izvestiya. Atmospheric and oceanic physics*, Sep. 1980, 16(2), p.98-102, 14 refs. Translated from its Izvestiia. Fizika atmosfery i okeana.
Pavlova, L.N., Petrushin, A.G.
Ice crystals, Light scattering, Ice crystal structure, Ice optics.

35-4159
Intensity fluctuations of a laser beam in falling snow.
Zhukov, A.F., et al, *Akademiia nauk SSSR Izvestiia Atmospheric and oceanic physics*, Sep. 1980, 16(2), p.103-107, 26 refs.
Tsvyk, P.Sh.
Lasers, Snowfall, Light transmission, Snow optics, Radiation absorption, Visibility.

35-4160
Nation's highest road is opened to top of Colorado's Mt. Evans. *Better roads*, July 1981, 51(5), p.6.
Snow removal, Ice removal, Ice control, Road icing, Mountains.

35-4161
Earth's heat may solve problem of dangerous iced bridge decks. *Better roads*, May 1981, 51(5), p.12
Bridges, Ice control, Snow removal, Geothermal thawing, Underground pipelines, Heat pipes.

35-4162
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Wildberger, A., *Beiträge zur Geologie der Schweiz—Hydrologie*, 1981, No.27, 175p. + maps, In German with French and English summaries. Refs. p. 164-175.
Karst, Sintering, Periglacial processes, Hydrology, Springs (water), Water chemistry, Geomorphology.

35-4163
Ecological research report; Volume 1: establishing a system for Alaska.
Underwood, L.S., et al, *U.S. Federal-State Land Use Planning Commission for Alaska. Commission report*, Mar. 1979, No.38, 36p. + map.
Juday, G.P.
Ecology, Economic development, Research projects, United States—Alaska.

35-4164
Proceedings. Volume 2.
Specialty Conference Water Forum '81, San Francisco, Calif., Aug.10-14, 1981, New York, American Society of Civil Engineers, 1981, p.711-1378, Refs. passim. For selected papers see 35-4165 through 35-4169.
Ice navigation, Ice conditions, Ice control, Impact, Damage, Meetings, Water supply, Models.

35-4165
Water supply conveyance problems in winter at high altitudes.
Garstka, W.U., et al, Specialty Conference Water Forum '81, San Francisco, Aug. 10-14, 1981. Proceedings. Vol.2, New York, American Society of Civil Engineers, 1981, p.735-742, 10 refs.
Water supply, Cold weather operation, Frazil ice, Ice control, River ice, Lake ice, Channels (waterways), Water temperature, Water pipelines.

35-4166
Modeling hydrologic impacts of winter navigation.
Daly, S.F., et al, MP 1445, Specialty Conference Water Forum '81, San Francisco, Aug. 10-14, 1981. Proceedings. Vol.2, New York, American Society of Civil Engineers, 1981, p.1073-1080, 12 refs.
Weiser, J.R.
Ice navigation, Ice loads, Impact, Ice booms, Ice control, Ice jams, River ice, Lake ice, Water level, Water flow, Models.
This paper reports on a study undertaken to determine the hydrologic and hydraulic impacts of a proposed winter navigation demonstration program on the St Lawrence River. The study assessed the impacts of modifying currently operational ice control booms on the levels and flows of Lake Ontario and the St Lawrence River at several locations to control ice jamming and subsequent adverse effects on the Moses-Saunders Power Dam. The study assumed that an ice control boom would be modified to allow vessel transits for winter navigation. A one-dimensional hydraulic transient model that simulated water profiles and flows in the St Lawrence River under both open water and ice covered conditions was utilized to determine the impacts of the increased ice cover thickness downstream caused by this modification. (Auth mod.)

35-4167
Ice problems on the middle Mississippi River.
Lovelace, J.T., et al, Specialty Conference Water Forum '81, San Francisco, Aug. 10-14, 1981. Proceedings. Vol.2, New York, American Society of Civil Engineers, 1981, p.1081-1087.
Stevens, G.T., Strauser, C.N.
River ice, Ice conditions, Ice navigation, Ice jams.

35-4168
Ice control at navigation locks.
Hanamoto, B., MP 1448, Specialty Conference Water Forum '81, San Francisco, Aug. 10-14, 1981. Proceedings. Vol.2, New York, American Society of Civil Engineers, 1981, p.1088-1095.
Ice control, Ice navigation, Locks (waterways), Bubbling, Tests.
A method for controlling ice at navigation locks is presented. A high-flow air screen placed across the entrance of a lock holds back ice floating downstream or pushed ahead of traffic. The analysis is based on low-flow bubbler systems. The applicability of this analysis to high-flow systems is examined by conducting laboratory tests. (Auth.)

35-4169
Ice control arrangement for winter navigation.
Perham, R.E., MP 1449, Specialty Conference Water Forum '81, San Francisco, Aug. 10-14, 1981. Proceedings. Vol.2, New York, American Society of Civil Engineers, 1981, p.1096-1103, 9 refs.
Ice navigation, Ice control, River ice, Ice jams, Ice booms, Water level.
This paper presents a four-year summary of the main effects of the booms on ice and ship interaction and vice-versa. Throughout the four winter seasons, relatively small quantities of ice were lost over and between the booms. Ships usually slid through without influencing the boom force levels, although, at times, the changes they wrought could be large. One boom needed strengthening and artificial islands were added for ice stability upstream. These devices and frequent icebreaker operations were able to compensate for the ice movement caused by winter navigation in this area.

35-4170
Ice engineering design of boat harbors and ports.
Wortley, C.A., Specialty Conference Water Forum '81, San Francisco, Aug. 10-14, 1981. Proceedings. Vol.2, New York, American Society of Civil Engineers, 1981, p.1104-1113, 5 refs.
Ice loads, Ice pileup, Ice control, Engineering, Ports, Damage, Pile load tests, Structures, Design criteria.

35-4171
Use of Markov chain in the study of snow occurrences.
Bolduc, S., Stanford, Calif., University, 1980, 139p., University Microfilms order No.71-12,855, Ph.D thesis. For abstract see Dissertation abstracts international, Sec. B, May 1971, p.6978.
Snowfall, Forecasting, Models, Precipitation (meteorology).

35-4172
Dynamics of snow-skis.
Piziali, R.L., Berkeley, University of California, 1970, 393p., University Microfilms order No 71-15,863, Ph.D. thesis. For abstract see Dissertation abstracts international, Sec. B, July 1971, p.323.
Skis, Dynamic properties, Dynamic loads, Pressure, Snow loads.

35-4173
Mathematical synthesis of hourly snowfall for the analysis of long-term municipal adjustments to snow hazards by simulation.
Sage, J.D., Worcester, Mass., Clark University, 1974, 188p., University Microfilms order No 74-18,887, Ph.D. thesis. For abstract see Dissertation abstracts international, Sec. A, Aug. 1974, p.979.
Snowfall, Snow accumulation, Forecasting, Snow density, Air temperature, Mathematical models, Snow removal, Cost analysis.

35-4174
Treatment and disposal system of waste materials at Mizuho Station.
Hayashida, S., et al, *Antarctic record*, Mar. 1981, No.72, p.49-60, In Japanese with English summary.
Mae, S., Murayama, M.
Water pollution, Water treatment, Waste disposal, Sanitary engineering, Antarctica—Mizuho Station.
As long as the activity of Mizuho Station is maintained, it will cause environmental pollution. The authors propose a treatment and disposal system of garbage, feces and waste water as a suitable system adapted for climatic conditions at Mizuho Station. This system involves freezing waste water in blocks and sealing garbage and feces in these blocks. (Auth.)

35-4175
Shape and size of ice ridges in the Baltic according to measurements and calculations.
Keinonen, A., *Styrelsen för vintersjöfartsforskning Research report*, Dec. 1976, No.17, 11p. + append., 12 refs.
Pressure ridges, Ice loads, Ice pressure, Leveling, Mass balance, Profiles, Computer programs.

35-4176
Creep of fresh water ice at high homologous temperatures.
Leppävuori, E.K.M., *Styrelsen för vintersjöfartsforskning. Research report*, Dec. 1976, No.19, 162p., 110 refs.
Ice creep, Ice crystal structure, Microstructure, Ice mechanics, Temperature effects, Ice cracks, Mathematical models.

35-4177
Economics of winter navigation in the northern part of the Gulf of Bothnia; description of computer programme.
Johansson, B.M., *Styrelsen för vintersjöfartsforskning Research report*, Aug. 1977, No 20, 8p. + appens., 1 ref.
Ice navigation, Computer programs, Icebreakers, Velocity, Marine transportation, Ice cover thickness, Cost analysis, Bothnia, Gulf.

35-4178
Measurement and analysis of ice-induced stresses in the shell of an icebreaker.
Varsta, P., *Styrelsen för vintersjöfartsforskning. Research report*, Aug. 1977, No 21, 26p. + figs., 8 refs.
Icebreakers, Ice navigation, Ice pressure, Ice loads, Stresses, Impact strength.

35-4179
On plastic design of an ice-strengthened frame.
Varsta, P., et al, *Styrelsen för vintersjöfartsforskning. Research report*, Oct 1978, No 27, 54p., 11 refs
Droumev, I.V., Hakala, M.
Ice navigation, Ships, Ice loads, Shear stress, Ultimate strength, Plastic properties, Ice pressure, Design, Mathematical models.

35-4180
Long term measurements of ice pressure and ice-induced stresses on the icebreaker *Sisu* in winter 1978.
Vuorio, J., et al, *Styrelsen för vintersjöfartsforskning Research report*, Apr. 1979, No 28, 50p., 9 refs
Riska, K., Varsta, P.
Ice pressure, Ice loads, Ice navigation, Stresses, Icebreakers, Impact strength, Ice cover thickness, Air temperature.

35-4181
Statistical features of sea ice ridging in the Gulf of Bothnia.
Leppäranta, M., *Styrelsen för vintersjöfartsforskning Research report*, Nov. 1980, No 32, 46p., 24 refs.
Sea ice, Pressure ridges, Ice formation, Ice structure, Ice navigation, Statistical analysis, Analysis (mathematics), Bothnia, Gulf.

35-4182
Polex-North-76 (scientific results) Part 2. (Poleks-Sever-76 (nauchnye rezul'taty) Chast' II).
Treshnikov, A.F., ed, Leningrad, Gidrometeoizdat, 1979, 194p., In Russian. For selected papers see 35-4183 through 35-4220. Refs. passim.
DLC G630 R8P64 1979
Ocean currents, Air water interactions, Water temperature, Latent heat, Sea ice, Ice formation, Pack ice, Ice surveys, Drift, Airborne radar, Ice forecasting, Mathematical models, Charts, Arctic Ocean.

35-4183
Complex full-scale experiment "IAna". (Kompleksnyi naturnyi eksperiment "IAna").
Gudkovich, Z.M., et al, Poleks-Sever-76 (nauchnye rezul'taty) Chast' II (Polex-North-76 (scientific results) Part 2) edited by A.F. Treshnikov, Leningrad, Gidrometeoizdat, 1979, p.7-15, In Russian. 4 refs
Gorbunov, IU.A., Losev, S.M.
DLC G630.R9P64 1979
Air water interactions, Latent heat, Sea ice, Ice formation, Ice air interface, Ice melting, Mathematical models, Ice forecasting, Arctic Ocean.

35-4184
Ice cover volume and ice thickness distribution on the southeastern part of the Laptev Sea at the end of the winter 1976. [Ob"em ledianogo pokrova i raspredelenie tolshchiny l'da v iugo-vostochnoĭ chasti moria Laptevykh v kontse zimy 1976 g.].
Gudkovich, Z.M., et al, Poleks-Sever-76 (nauchnye rezul'taty) Chast' II (Polex-North-76 (scientific results) Part 2) edited by A.F. Treshnikov, Leningrad, Gidrometeoizdat, 1979, p.16-19, In Russian. 3 refs.
Gladkov, M.G., Luk'ianchikov, S.N.
DLC G630 R9P64 1979
Sea ice, Drift, Ice cover strength, Ice cover thickness, Aerial surveys, Ice surveys, Ice reporting.

35-4185
Reflectivity of ice cover during the ice melting period in the southeastern part of the Laptev Sea. [Otrazhatel'naia sposobnost' ledianogo pokrova v period taianiia l'da v iugo-vostochnoĭ chasti moria Laptevykh].
Appel', I.L., et al, Poleks-Sever-76 (nauchnye rezul'taty) Chast' II (Polex-North-76 (scientific results) Part 2) edited by A.F. Treshnikov, Leningrad, Gidrometeoizdat, 1979, p.27-31, In Russian. 4 refs.
Gudkovich, Z.M.
DLC G630.R9P64 1979
Sea ice, Reflectivity, Ice optics, Ice melting, Ice surface.

35-4186
Evaluating heat spent for ice melting in the southeastern part of the Laptev Sea in the summer 1976. [Otsenka zatrat tepla na taianie l'da v iugo-vostochnoĭ chasti moria Laptevykh letom 1976 g.].
Gudkovich, Z.M., Poleks-Sever-76 (nauchnye rezul'taty) Chast' II (Polex-North-76 (scientific results) Part 2) edited by A.F. Treshnikov, Leningrad, Gidrometeoizdat, 1979, p.21-27, In Russian. 6 refs.
DLC G630.R9P64 1979
Sea ice, Ice melting, Heat loss, Ice cover thickness, Drift, Pack ice.

35-4187
Hydrologic observations and the calculation of heat balance in the southeastern part of the Laptev Sea. [Rezul'taty gidrologicheskikh nabliudeniĭ i raschet teplovogo balansa raĭona iugo-vostochnoĭ chasti moria Laptevykh].
Gudkovich, Z.M., et al, Poleks-Sever-76 (nauchnye rezul'taty) Chast' II (Polex-North-76 (scientific results) Part 2) edited by A.F. Treshnikov, Leningrad, Gidrometeoizdat, 1979, p.38-44, In Russian. 3 refs.
Romantsova, I.F.
DLC G630.R9P64 1979
Ocean currents, Water temperature, Sea ice, Drift, Ice edge, Heat transfer.

35-4188
Peculiarities of ice drift in the southeastern part of the Laptev Sea. [Osobennosti dreĭfa l'da v iugo-vostochnoĭ chasti moria Laptevykh].
Gorbunov, IU.A., et al, Poleks-Sever-76 (nauchnye rezul'taty) Chast' II (Polex-North-76 (scientific results) Part 2) edited by A.F. Treshnikov, Leningrad, Gidrometeoizdat, 1979, p.45-65, In Russian. 7 refs.
Gudkovich, Z.M., Appel', I.L.
DLC G630.R9P64 1979
Sea ice, Drift, Ice surveys, Airborne radar, Ice floes, Flow rate, Mapping, Charts.

35-4189
Ice transfer through the New Siberian straits. [Ledoobmen cherez Novosibirskie prolivy].
Gorbunov, IU.A., Poleks-Sever-76 (nauchnye rezul'taty) Chast' II (Polex-North-76 (scientific results) Part 2) edited by A.F. Treshnikov, Leningrad, Gidrometeoizdat, 1979, p.66-72, In Russian.
DLC G630.R9P64 1979
Sea ice, Drift, Ocean currents, Ice surveys, Airborne radar, Ice reporting, USSR—New Siberian Islands.

35-4190
Changes in pack ice density due to dynamic processes. [Izmenenie splochennosti ledianogo pokrova pod vliianiem dinamicheskikh protsessov].
Gudkovich, Z.M., Poleks-Sever-76 (nauchnye rezul'taty) Chast' II (Polex-North-76 (scientific results) Part 2) edited by A.F. Treshnikov, Leningrad, Gidrometeoizdat, 1979, p.73-81, In Russian. 11 refs.
DLC G630.R9P64 1979
Pack ice, Drift, Ice mechanics, Airborne radar, Ice reporting, Charts.

35-4191
Ice crushing in the southeastern part of the Laptev Sea. [Droblenie l'da v iugo-vostochnoĭ chasti moria Laptevykh].
Losev, S.M., Poleks-Sever-76 (nauchnye rezul'taty) Chast' II (Polex-North-76 (scientific results) Part 2) edited by A.F. Treshnikov, Leningrad, Gidrometeoizdat, 1979, p.82-91, In Russian. 6 refs.
DLC G630.R9P64 1979
Sea ice, Drift, Ice breakup, Pack ice, Ice floes, Analysis (mathematics).

35-4192
Evaluating areas of meltwater on ice from aerial photographs. [Otsenka ploshchadi vody na l'du po materialam aerofotos"emki].
Buzuev, A.IA., et al, Poleks-Sever-76 (nauchnye rezul'taty) Chast' II (Polex-North-76 (scientific results) Part 2) edited by A.F. Treshnikov, Leningrad, Gidrometeoizdat, 1979, p.92-106, In Russian. 7 refs.
Gorbunov, IU.A., Gudkovich, Z.M., Losev, S.M.
DLC G630.R9P64 1979
Meltwater, Snow cover distribution, Ice surveys, Snow melting, Photographic reconnaissance, Ice cover.

35-4193
Grounded ice hummocks in the southeastern part of the Laptev Sea. [Stamukhi v iugo-vostochnoĭ chasti moria Laptevykh].
Gorbunov, IU.A., Poleks-Sever-76 (nauchnye rezul'taty) Chast' II (Polex-North-76 (scientific results) Part 2) edited by A.F. Treshnikov, Leningrad, Gidrometeoizdat, 1979, p.107-110, In Russian. 2 refs.
DLC G630.R9P64 1979
Ice navigation, Sea ice, Drift, Ice conditions, Ice reporting.

35-4194
Dimensions of ice fields. [Razmery ledianykh poleĭ].
Romanov, I.P., Poleks-Sever-76 (nauchnye rezul'taty) Chast' II (Polex-North-76 (scientific results) Part 2) edited by A.F. Treshnikov, Leningrad, Gidrometeoizdat, 1979, p.111-115, In Russian.
DLC G630.R9P64 1979
Pack ice, Drift stations, Ice surveys, Ice cover thickness, Pressure ridges, Ice reporting, Ice strength, Charts, Arctic Ocean.

35-4195
Vertical structure of the small-scale turbulent friction coefficient in the upper layer of the Arctic Basin. [Vertikal'naia struktura koeffitsienta melkomasshtabnogo turbulentnogo treniia v verkhnem sloe Arkticheskogo basseĭna].
Beliakov, L.N., et al, Poleks-Sever-76 (nauchnye rezul'taty) Chast' II (Polex-North-76 (scientific results) Part 2) edited by A.F. Treshnikov, Leningrad, Gidrometeoizdat, 1979, p.116-120, In Russian. 6 refs.
Nagurnyĭ, A.P.
DLC G630.R9P64 1979
Oceanography, Ocean currents, Water transport, Turbulent flow, Friction, Analysis (mathematics).

35-4196
Atmospheric circulation above the northern part of the Pacific Ocean. [Osobennosti atmosfernoĭ tsirkuliatsii nad severnoĭ chast'iu Tikhogo okeana].
Vlasova, I.G., et al, Poleks-Sever-76 (nauchnye rezul'taty) Chast' II (Polex-North-76 (scientific results) Part 2) edited by A.F. Treshnikov, Leningrad, Gidrometeoizdat, 1979, p.121-125, In Russian. 8 refs.
Panchugin, R.G.
DLC G630.R9P64 1979
Atmospheric circulation, Synoptic meteorology, Atmospheric disturbances, Meteorological charts.

35-4197
Heat balance of the surface of the northeastern part of the Pacific Ocean. [Teplovoĭ balans poverkhnosti severo-vostochnoĭ chasti Tikhogo okeana].
Zakablukovskiĭ, A.P., et al, Poleks-Sever-76 (nauchnye rezul'taty) Chast' II (Polex-North-76 (scientific results) Part 2) edited by A.F. Treshnikov, Leningrad, Gidrometeoizdat, 1979, p.136-138, In Russian. 3 refs.
Nelepov, E.N.
DLC G630.R9P64 1979
Oceanographic surveys, Air water interactions, Heat balance, Charts.

35-4198
Subarctic hydrologic front in the central area of the northern Pacific. [Subarkticheskiĭ gidrologicheskiĭ front v tsentral'nom raĭone severnoĭ chasti Tikhogo okeana].
Nadeliaev, A.G., Poleks-Sever-76 (nauchnye rezul'taty) Chast' II (Polex-North-76 (scientific results) Part 2) edited by A.F. Treshnikov, Leningrad, Gidrometeoizdat, 1979, p.161-171, In Russian. 10 refs.
DLC G630.R9P64 1979
Oceanography, Water transport, Water temperature, Ocean currents, Charts.

35-4199
Geostrophic water circulation in the northeastern part of the Pacific Ocean. [Geostroficheskaia tsirkuliatsiia vod severo-vostochnoĭ chasti Tikhogo Okeana].
Kholmanov, V.B., Poleks-Sever-76 (nauchnye rezul'taty) Chast' II (Polex-North-76 (scientific results) Part 2) edited by A.F. Treshnikov, Leningrad, Gidrometeoizdat, 1979, p.172-177, In Russian. 7 refs.
DLC G630.R9P64 1979
Oceanographic surveys, Oceanographic ships, Ocean currents, Water transport, Charts.

35-4200
Statistical structure of currents in the northwestern part of the Pacific Ocean. [Statisticheskaia struktura techeniĭ v severo-zapadnoĭ chasti Tikhogo okeana].
Khlopov, V.V., et al, Poleks-Sever-76 (nauchnye rezul'taty) Chast' II (Polex-North-76 (scientific results) Part 2) edited by A.F. Treshnikov, Leningrad, Gidrometeoizdat, 1979, p.184-193, In Russian. 5 refs.
Tsvetukhin, A.S.
DLC G630.R9P64 1979
Oceanographic surveys, Ocean currents, Velocity measurement, Water transport, Wind factors.

35-4201
New method of measuring snowflake size and falling velocity.
Suzuki, M., et al, *Seppyo*, Mar. 1981, 43(1), p.1-8, In Japanese with English summary. 8 refs.
Sha, K., Ebihara, H., Akiba, T.
Snowflakes, Falling bodies, Photography.

35-4202
Melting of ice in Lake Harutori observed in April 1973.
Toukairin, A., *Seppyo*, Mar. 1981, 43(1), p.9-13, In Japanese with English summary. 4 refs.
Lake ice, Ice melting.

35-4203
Forest cutting and avalanches on heavy snow slopes.
Saeki, M., et al, *Seppyo*, Mar. 1981, 43(1), p.15-20, In Japanese with English summary. 5 refs.
Wakabayashi, R., Watanabe, S., Ohzeki, Y., Niwano, S.
Avalanches, Slopes, Forests.

35-4204
Experiments for marine structures in ice infested waters.
Oshima, M., et al, *Seppyo*, Mar. 1981, 43(1), p.21-28, In Japanese. 3 refs.
Offshore structures, Ice pressure.

35-4205
Fundamentals of cold regions engineering (Pt.9).
Higashi, A., *Seppyo*, Mar. 1981, 43(1), p.29-40, In Japanese. 26 refs.
Ice mechanics, Engineering, Polar regions.

35-4206
First artificial snow crystals (Pt.2).
Sekido, Y., *Seppyo*, Mar. 1981, 43(1), p.41-54, In Japanese.
Snow crystal structure, Snow crystal growth, Artificial snow.

35-4207
Progress of Japanese glaciological research in Antarctica.
Kusunoki, K., *Seppyo*, Mar. 1981, 43(1), p.55-61, 3 refs.
Research projects, Glaciology, Meteorites, Antarctica—Showa Station, Antarctica—Mizuho Station.
Japanese Antarctic Research Expedition (JARE) established Showa Station on East Ongul Island in Lützow-Holm Bay in January 1957 and an inland station Mizuho in July 1970. These two stations have been the bases for glaciological work of JARE in conjunction with the research at home laboratories. Field activities of JARE are divided into three periods: the exploratory period from 1957 to February 1969 which was terminated with a successful return trip from Showa Station to the South Pole in the 1968-1969 field season, the second period from 1969 to 1978 is characterized by a systematic glaciological survey of Mizuho Plateau, oversnow traverses, and station glaciology at Mizuho Station where ice core drillings were conducted, from 1978 a three-year programme (POLEX South) is in progress to investigate the air-ice sheet-sea (ice) interactions

Major outcomes in these periods are described briefly with the discovery of meteorites (about 4,000 specimens) near the Yamato Mountains and the Belgica Mountains. Reports on glaciological research and meteorite research in south Victoria Land are appended. (Auth.)

35-4208
Glacier surveys in Alberta—1979.
Reid, I.A., et al, *Canada. Water Resources Branch. Report series,* 1981, no 69, With French summary. 9 refs.
Charbonneau, J.O.G.
Glacier surveys, Glacier oscillation, Glacier mass balance, Glacial hydrology, Photogrammetric surveys, Statistical analysis, Canada—Alberta.

35-4209
Linear expansion due to freezing and other properties of bricks.
Davison, J.I., *National Research Council, Canada. Division of Building Research. DBR paper,* [1981], No.921, 24p., Reprinted from Proceedings of the Second Canadian Masonry Symposium, Ottawa, June 9-11, 1980. 7 refs. In English with French summary.
Bricks, Freezing, Saturation, Freeze thaw cycles, Brittleness, Porosity, Cracking (fracturing).

35-4210
Flora of Svalbard. [Svalbards flora],
Rønning, O.I., Polarhåndbok, No.1, Oslo, Norsk Polarinstitutt, 1979, 126p., In Norwegian.
Vegetation, Plants (botany), Classifications, Norway—Svalbard.

35-4211
Methods for calculating the travel distance and impact pressure of flowing avalanches. [Verfahren zur Reichweiten- und Stossdruckberechnung von Fliesslawinen],
Laatsch, W., et al, *Forstliche Forschungsberichte, Munich,* 1981, No.47, 125p., In German with English summary. Refs. p.122-125.
Zenke, B., Dankerl, J.
Avalanche mechanics, Avalanche tracks, Impact strength, Velocity, Pressure, Flow measurement.

35-4212
Snow surface energy exchange.
Male, D.H., et al, *Water resources research,* June 1981, 17(3), p.609-627, Refs. p.625-627.
Granger, R.J.
Snow melting, Heat transfer, Snow surface, Meltwater, Solar radiation, Latent heat, Reflection, Cloud cover, Forest canopy, Altitude.

35-4213
Geomorphological observations at Kangerdlugssuaq, East Greenland.
Brooks, C.K., *Greenland geoscience,* 1979, No.1, 25p., 52 refs.
Geomorphology, Glacier surveys, Glacial lakes, Greenland—Kangerdlugssuaq.

35-4214
Small prototype cone tests, winter 1974-75.
Verity, P.H., *Arctic Petroleum Operators Association, Calgary, Alta. Report,* [1975], APOA82-1, 95p. + appends., IPRT-39ME-75, 6 refs.
Ice loads, Ice solid interface, Offshore structures, Ice adhesion, Ice pressure, Impact strength, Ice friction, Ice strength, Temperature effects, Salinity, Tests.

35-4215
On ice-wedge polygons in Öland. [Till frågan om iskilspolygoner på Öland],
Svensson, H., *Svensk geografisk årsbok,* 1979, No.55, p.110-112, In Swedish.
Ice wedges, Ground ice, Polygonal topography.

35-4216
Avalanches and planning. [Lawinen und Planung],
Schwarz, W., *Schweizerische Zeitschrift fur Forstwesen,* June 1981, No.6, p.425-442, In German
Avalanche formation, Countermeasures, Snow fences, Accidents, Site surveys, Skis.

35-4217
Field studies on the response of floating ice sheets to moving loads.
Beltaos, S., *Canadian journal of civil engineering,* Mar. 1981, 8(1), p.1-8, With French summary. 5 refs. For another version see 34-920.
Floating ice, Dynamic loads, Ice cover thickness, Water, Velocity, Depth.

35-4218
Snow loads for the design of cylindrical curved roofs in Canada 1953-1980.
Taylor, D.A., *Canadian journal of civil engineering,* Mar. 1981, 8(1), p.63-76, With French summary. 16 refs.
Snow loads, Roofs, Snow cover distribution, Buildings, Design, Arches.

35-4219
Physical mechanics of anfels growth.
Kane, D.L., *Canadian journal of civil engineering,* June 1981, 8(2), p.186-195, With French summary. 21 refs.
Naleds, Ice growth, Ice physics, Ice mechanics, Ground water, Water pressure, Ice cover thickness.

35-4220
Aerophotographic interpretation of surface features and an estimation of ice discharge at the outlet of the Shirase drainage basin, Antarctica.
Fujii, Y., *Antarctic record,* Mar. 1981, No.72, p.1-15, 9 refs.
Glacier mass balance, Glacier flow, Ice cover thickness, Wind (meteorology) Antarctica—Shirase Glacier.
Aerophotographs taken by the Japanese Antarctic Research Expedition in 1962, 1969, 1975 and 1977 are analyzed to classify distinctive surface structures and katabatic wind regime at the terminus of the Shirase Glacier (70S, 39E). Ice discharge from the Shirase drainage basin is calculated as the sum of ice discharge from three subdivisional drainages with different flow velocities and ice thickness at their outlets. From the displacement of icebergs, the flow velocities of about 2500 m/a and about 360 m/a are obtained for the Shirase Glacier and the sheet flow in the west of the Shirase Glacier, respectively. Thicknesses of the icebergs near the calving front are also obtained by aerophotogrammetry. The total discharge from the Shirase drainage basin is reported to be more accurate than the values by other authors. Subtracting the total discharge from the income previously reported by other authors, the mass budget of the ice sheet in the basin is estimated. (Auth. mod.)

35-4221
Airborne radio echo sounding on the Shirase Glacier and its drainage basin, East Antarctica.
Wada, M., et al, *Antarctic record,* Mar. 1981, No.72, p.16-25, 16 refs.
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Mukhanov, K.K., et al, *Russia. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniia. Izvestiia vysshikh uchebnykh zavedenii. Stroitel'stvo i arkhitektura*, 1981, No.4, p.133-136, In Russian. 6 refs.
Ishmeneva, L.N.
Steel structures, Frost resistance, Alloys, Hardness tests.

35-4293
General conditions in arctic areas. (Arktisten alueitten yleiset olosuhteet),
Karri, J., *Helsinki. Valtion teknillinen tutkimuskeskus. Rakenneteknikan laboratorio. Tiedonanto*, Mar. 1981, No.12, 56p. + 5 figs., In Finnish with English summary, 21 refs.
Permafrost distribution, Cold weather construction, Snow surveys, Sea ice, Ice conditions, Meteorological data.

35-4294
C-axes growth rate of ice crystals.
Simpson, H.C., et al, *Desalination*, June 1976, 18(3), p.219-230, 14 refs.
Beggs, G.C., Nakamura, J., Baxter, A.
Ice crystal growth, Brines, Salt water, Water temperature, Boundary layer, Flow rate, Temperature effects, Analysis (mathematics), Experimentation.

35-4295
Exchange crystallization freeze desalination process.
Johnson, D.W., et al, *Desalination*, June 1976, 18(3), p.231-240, 2 refs.
Lott, J.L., Slepcevich, C.M.
Freezing, Sea water, Desalting, Ice crystal growth, Phase transformations, Brines.

35-4296
Observations on the stone-banked lobes of Marion Island.
Hall, K., *South African journal of science*, Mar. 1981, 77(3), p.129-131, 12 refs.
Patterned ground, Glacial geology, Marion Island.

Stone-banked lobes occurring on the glacial debris of sub-Antarctic Marion Island, through the altitudinal range 70 m to 450 m above sea level (a.s.l.) are described. From their relationship to past and present climatic conditions, it is concluded that the stone-banked lobes are not a product of the present conditions and that today they are largely inactive. It is tentatively suggested that lobe formation took place during the latter stages of the last glacial and that some were formed immediately upon deglaciation, around 11,000 B.P. (Auth.) Correlation coefficients expressing the possible relationships between various lobe parameters have been derived, which suggest that there is an increase in riser height with increase in lobe length and, at the same time, lobe slope.

35-4297
241Pu/239+240Pu ratios in polar glaciers.
Koide, M., et al. *Earth and planetary science letters*, July 1981, 54(2), p.239-247, 21 refs.
Goldberg, E.D.
Glacier ice, Impurities, Ice composition, Radioactive isotopes, Antarctica—Victoria Land.
The analyses of plutonium isotopes in dated strata of polar ice sheets indicate that the 241Pu/239+240Pu activity ratio produced in the U.S.-dominated nuclear tests during the 1950s was about 26, while that in the U.S.S.R.-dominated weapons tests in the early 1960s was between 12 and 14. This difference provides time horizons for sedimentary deposits. Further, the 239Pu/240Pu ratio may show a similar difference in fallout values from these two periods of weapons testing and may provide an additional, and perhaps more sensitive, chronology for sediments. Data from J-9 and Dome C were used in the analysis to obtain comparative ratios. (Auth.)

35-4298
Primary production under the Ross Ice Shelf, Antarctica.
Horrigan, S.G., *Limnology and oceanography*, Mar. 1981, 26(2), p.378-382, 18 refs.
Ice shelves, Biomass, Marine biology, Antarctica—Ross Ice Shelf.
Primary production, defined as fixation of (14C)bicarbonate, occurs in the waters under the Ross Ice Shelf, Antarctica. About 1.5gC/sq.m is fixed annually. This amount is sufficient to support the observed macrofaunal population and may be due to the activity of chemoautotrophic nitrifying bacteria. (Auth.)

35-4299
Adjustment to avalanche hazard in New Zealand.
Prowse, T.D., et al, *New Zealand geographer*, Apr. 1981, 37(1), p.25-31, 23 refs.
Owens, I.F., McGregor, G.R.
Avalanches, New Zealand.

35-4300
Forecasting maximum water level during ice jamming in the pinch-out area of the Novosibirsk water reservoir (Ob' River). (Predskazanie maksimal'nogo zatornogo urovnia v zone vyklinivaniia vodokhranilishcha (na primere Novosibirskogo vodokhranilishcha na r. Obi)),
Liser, I.IA., *Zapadno-Sibirskiĭ regional'nyĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1981, Vol.51, p.11-20, In Russian. 9 refs.
Ice jams, Icebound lakes, Ice melting, Water level, Ice conditions, Ice forecasting, Reservoirs.

35-4301
Long-range forecasting of ice cover thickness in the lower course of the Yenisey River at Yeniseysk (the estuary area). (Sposob dolgosrochnogo prognoza tolshchiny ledianogo pokrova na nizhnem Enisee (g. Eniseĭsk—ust'e)),
Chernov, I.M., *Zapadno-Sibirskiĭ regional'nyĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1981, Vol.51, p.21-28, In Russian. 6 refs.
Ice navigation, Icebreakers, Ice breaking, Ice cover thickness, Ice forecasting, Long range forecasting, Estuaries, USSR—Yenisey River.

35-4302
Evaluating the influence of natural factors on the strength of melting ice covers on rivers and lakes. (Ob otsenke vliianiia prirodnykh faktorov na prochnost' taiushchego ledianogo pokrova rek i vodoemov),
Ergin, V.P., *Zapadno-Sibirskiĭ regional'nyĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1981, Vol.51, p.29-38, In Russian. 15 refs.
Icebound lakes, Icebound rivers, Ice cover strength, Ice crossings, Ice runways, Ice surface, Heat balance, Ice melting.

35-4303
Avalanche activity in the upper course of Katun' River. (Kharakteristika snegolavinnoĭ deiatel'nosti v verkhov'e r. Katuni),
Chubenko, A.G., *Zapadno-Sibirskiĭ regional'nyĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1981, Vol.51, p.77-86, In Russian. 17 refs.
Alpine landscapes, River basins, Snow accumulation, Slope processes, Avalanche formation, Avalanche triggering, USSR—Altai Mountains.

35-4304
Mudflows in the Chuya "belki" (snow-covered, flattened mountain summits), Altai Mountains. (Seli Chuĭskikh belkov (gornyĭ Altaĭ)),
Vinogradov, V.A., *Zapadno-Sib[illegible] regional'nyĭ nauchno-issledovatel'skiĭ institu[illegible] udy*, 1981, Vol.51, p.87-92, In Russian. 16 re[illegible]
Slope processes, Alpine landscapes, Snow accumulation, Snowmelt, Mudflows, Aerial photography, Glaciation, Nivation.

35-4305
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Churinov, M.V., ed, Moscow, Nedra, 1981, 325p., In Russian with abridged English table of contents enclosed. 10 refs.
Manuals, Engineering geology, Geocryology, Surveys, Slope processes, Soil freezing, Frost penetration, Frozen ground physics.

35-4306
Air temperature distribution above a glacier along its transverse profile. (Raspredelenie temperatury vozdukha nad lednikom vdol' poperechnogo profiliia),
Tikhanovskaia, A.A., *Sredneaziatskiĭ regional'nyĭ nauchno-issledovatel'skiĭ institut. Trudy*, 1981, Vol.81, p.6[illegible]66, In Russian. 3 refs.
Glacier surfaces, Air temperature, Temperature distribution.

35-4307
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Zhirmunskiĭ, A.V., ed, Vladivostok, 1979, 183p., In Russian. For selected papers see 35-4308 and 35-4309. Refs. passim.
Cryogenic soils, Permafrost distribution, Landscape types, Taiga, Swamps, Economic development, Bibliographies.

35-4308
Scientific basis of economic development of the mountain taiga zone in Primor'e. (Razrabotka nauchnykh osnov khoziaĭstvennogo osvoeniia gornotaezhnoĭ zony Primor'ia),
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Zorikov, P.S.
Mountains, Taiga, Cryogenic soils, Landscape types, Bibliographies.

35-4309
Basic stages of landscape and soil evolution in the southern Far East. (Osnovnye etapy evoliutsii landshaftov i pochv na iuge Dal'nego Vostoka),
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Cryogenic soils, Taiga, Swamps, Landscape types, Bibliographies.

35-4310
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Melua, A.I., Chistiakova, T.N.
Urban planning, Spaceborne photography, Photointerpretation, Permafrost distribution, Permafrost hydrology, Glaciers, Snow cover distribution, Pollution, Mapping.

35-4311
Formation of meltwater losses. (Formirovanie poter' talogo stoka),
Kaliuzhnyĭ, I.L., et al, Leningrad, Gidrometeoizdat, 1981, 160p., In Russian with English table of contents enclosed. 133 re[illegible]
Pavlova, K.K.
Snow melt, Soil freezing, Meltwater, Freeze thaw cycles, Seepage, Soil water migration, Permeability, Frost penetration, Unfrozen water content, Runoff, Mathematical models, Thawing.

35-4312
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Konovalov, I.N., Fiziologiia prisposobleniia introduktsentov na Kraĭnem Severe (Adaptation physiology of introduced plants in the Far North) edited by P.M. Zhiboedov and V.V. Nikonov, Apatity, 1980, p.3-12, In Russian. 31 refs.
Polar regions, Introduced plants, Cryogenic soils, Permafrost depth, Plant ecology, Plant physiology.

35-4313
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Snow removal, Streets, Snowfall, Snowstorms.

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Hirose, K.
Freezing, Two dimensional nucleation, Thermal conductivity, Boundary layer, Analysis (mathematics), Cylinders.

35-4315
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Lachance, M.
Concrete freezing, Freeze thaw cycles, Air entrainment, Compressive properties, Concrete aggregates, Freezing rate, Ultrasonic tests, Microstructure, Time factor.

35-4316
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Chapin, M.C.
Tundra, Plant ecology, Growth, Temperature gradients, Biomass, Revegetation, Roots.

35-4317
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Rosier, K., Juneau, Alaska, Dept. of Education, 1977, 415p.
DLC Z6004.C6R67
Ice navigation, Ice conditions, Ice loads, Offshore structures, Sea ice, Mineral resources, Vegetation, Animals.

35-4318
Improved snow study kit.
Richens, V.B., et al, *Journal of wildlife management*, Jan. 1973, 37(1), p.109-113, 2 refs.
Madden, C.G.
Snow density, Snow hardness, Snow surveys, tools, Measuring instruments.

35-4319
Measurement of surface strain rate in glaciers using embedded wire strain gages.
Warner, G., et al, *Experimental mechanics*, Jan. 1974, 14(1), p.24-28, 9 refs.
Cloud G.
Glacier flow, Glacier surfaces, Strain tests, Strain measuring instruments.

35-4320
Lake Erie in mid-winter.
Burns, N.M., et al, *Journal of Great Lakes research*, June 1978, 4(2), p.134-141, 10 refs.
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Icebound lakes, Water chemistry, Oxygen, Biomass.

35-4321
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Rumer, R.R., Jr., et al, *Journal of Great Lakes research*, June 1978, 4(2), p.194-200, 15. refs.
Yu, P.M.
Lake ice, Ice breakup, Drift, Ice air interface, Heat transfer, Mathematical models, Ice [illegible]hess.

35-4322
Corrosive effects of deicing salts on automobiles.
Palmer, J.D., *Materials protection and performance*, Nov. 1971, 10(11), p.38-43, 7 refs.
Corrosion, Vehicles, Salting, Chemical ice prevention, Sands.

35-4323
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Ignatenko, I.V., ed, Vladivostok, 1979, 164p., In Russian. For selected papers see 35-4324 through 35-4331. Refs. passim.
Berman, D.I., ed.
Landscape types, Alpine tundra, Taiga, Forest tundra, Swamps, Biomass, Cryogenic soils, Plant physiology, Soil microbiology.

35-4324
Biomass reserves and structure in mountain landscapes of the northern Okhotsk Sea area. (Zapasy i struktura rastitel'noĭ massy v gornykh landshaftakh severnogo Okhotomor'iaj.
Ignatenko, I.V., et al, Biologicheskiĭ krugovorot v tundroles'iakh iuga Magadanskoĭ oblasti (Biological cycle in forest tundras of the southern Magadan area) edited by I.V. Ignatenko and D.I. Berman, Vladivostok, 1979, p.5-15, In Russian. 29 refs.
Kotliarov, I.I., Pugachev, A.A.
Landscape types, Vegetation, Biomass, Alpine tundra, Variations, Altitude.

35-4325
Biomass reserves and structure of basic larch forest types in the northern Okhotsk Sea area. (Zapasy i struktura rastitel'noĭ massy v osnovnykh tipakh listvennichnikov Severnogo Okhotomor'iaj.
Moskaliuk, T.A., Biologicheskiĭ krugovorot v tundroles'iakh iuga Magadanskoĭ oblasti (Biological cycle in forest tundras of the southern Magadan area) edited by I.V. Ignatenko and D.I. Berman, Vladivostok, 1979, p.16-27, In Russian. 19 refs.
Taiga, Biomass, Mosses, Lichens, Cryogenic soils, Swamps, Permafrost depth.

35-4326
Biomass reserves of permafrost and non-permafrost ecosystems in the black spruce stands of interior Alaska. (Zapasy fitomassy v merzlotnykh i nemerzlotnykh ekosistemakh chernoĭ eli Picea mariana kontitental'noĭ Aliaskij.
Van Cleve, K., Biologicheskiĭ krugovorot v tundroles'iakh iuga Magadanskoĭ oblasti (Biological cycle in forest tundras of the southern Magadan area) edited by I.V. Ignatenko and D.I. Berman, Vladivostok, 1979, p.28-36, In Russian. 9 refs
Forest land, Mountains, Vegetation, Slope orientation, Plains, Swamps, Biomass.

35-4327
Dynamics of offshoot formation in some juniper shrubs in the northern Okhotsk Sea area. (Dinamika pobegoobrazovaniia nekotorykh vereskovykh kustarnichkov Severnogo Okhotomor'iaj.
Mazurenko, M.T., Biologicheskiĭ krugovorot v tundroles'iakh iuga Magadanskoĭ oblasti (Biological cycle in forest tundras of the southern Magadan area) edited by I.V. Ignatenko and D.I. Berman, Vladivostok, 1979, p.37-91, In Russian. 41 refs.
Forest tundra, Plant ecology, Growth, Plant physiology, Cryogenic soils, Paludification.

35-4328
Biomass dynamics and biological cycle in tundra and elfing wood-cedar landscapes of the Okhotsk Sea area. (Dinamika rastitel'noĭ massy i biologicheskiĭ krugovorot v gornotundrovykh i kedrovostlanikovykh landshaftakh Severnogo Okhotomor'iaj.
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Pugachev, A.A.
Alpine tundra.

35-4329
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Pivovarova, Zh.F., et al, Biologicheskiĭ krugovorot v tundroles'iakh iuga Magadanskoĭ oblasti (Biological cycle in forest tundras of the southern Magadan area) edited by I.V. Ignatenko and D.I. Berman, Vladivostok, 1979, p.125-133, In Russian. 9 refs.
Berman, D.I.
Soil microbiology, Algae, Forest tundra, Cryogenic soils, Peat, Podsol, Soil composition.

35-4330
Peat accumulation in intensively drained soils of the far northeastern USSR. (O torfonakoplenii v intensivno drenirovannykh pochvakh Kraĭnego Severo-Vostoka SSSR).
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Ignatenko, I.V., Pugachev, A.A.
Swamps, Drainage, Peat, Ground ice, Cryogenic soils, Taiga, Forest tundra, Tundra.

35-4331
Studies of humification processes in soils of the Okhotsk Sea area. (K izucheniiu protsessov gumifikatsii v pochvakh Severnogo Okhotomor'iaj.
Andreev, D.P., Biologicheskiĭ krugovorot v tundroles'iakh iuga Magadanskoĭ oblasti (Biological cycle in forest tundras of the southern Magadan area) edited by I.V. Ignatenko and D.I. Berman, Vladivostok, 1979, p.146-149, In Russian. 5 refs.
Landscape types, Taiga, Cryogenic soils, Soil microbiology, Soil chemistry, Permafrost hydrology.

35-4332
Alpine tundras of the Bol'shoy Annachag Range (upper course of the Kolyma River). (Gornye tundry khrebta Bol'shoĭ Annachag (verkhov'e Kolymy)).
Berman, D.I., ed, Vladivostok, 1980. 178p., In Russian. For selected papers see 35-4333 through 35-4338. Refs passim
Kontrimavichus, V.L., ed.
Alpine tundra, River basins, Climate, Slope processes, Mountain glaciers, Forest tundra, Vegetation patterns, Geobotanical interpretation, Landscape types, Plant ecology, Soil microbiology.

35-4333
Climate peculiarities of alpine tundras in the upper courses of the Kolyma and Indigirka rivers. (Osnovnye osobennosti klimata gornykh tundr verkhov'ev Kolymy i Indigirki).
Alfimov, A.V., et al, Gornye tundry Khrebta Bol'shoĭ Annachag (verkhov'e Kolymy) (Alpine tundras of the Bol'shoy Annachag Range (upper course of the Kolyma River)) edited by D.I. Berman and V.L. Kontrimavichus, Vladivostok, 1980, p.7-31, In Russian. 11 refs.
Bulgakov, A.B.
River basins, Alpine tundra, Climate, Air temperature, Wind factors, Precipitation (meteorology), Seasonal variations.

35-4334
Landscape structure of the Sibit-Tyellakh River basin. (Landshaftnaia struktura basseĭna reki Sibit-Tyellakh).
Egorova, G.N., Gornye tundry Khrebta Bol'shoĭ Annachag (verkhov'e Kolymy) (Alpine tundras of the Bol'shoy Annachag Range (upper course of the Kolyma River)) edited by D.I. Berman and V.L. Kontrimavichus, Vladivostok, 1980, p.32-53, In Russian. 10 refs
Landscape types, Alpine tundra, Slope processes, Mountain glaciers, Forest tundra, Vegetation patterns, Geobotanical interpretation.

35-4335
Soil cover structure in the Alpine tundras of the Bol'shoy Annachag Range. (Struktura pochvennogo pokrova gornykh tundr khrebta Bol'shoĭ Annachag).
Ignatenko, I.V., et al, Gornye tundry Khrebta Bol'shoĭ Annachag (verkhov'e Kolymy) (Alpine tundras of the Bol'shoy Annachag Range (upper course of the Kolyma River)) edited by D.I. Berman and V.L. Kontrimavichus, Vladivostok, 1980, p.54-67, In Russian. 27 refs.
Mazhitova, G.G., Pugachev, A.A.
Alpine tundra, Cryogenic soils, Soil structure, Permafrost depth, Permafrost structure, Maps.

35-4336
Microbe associations and biologic activities of Alpine tundra soils in the Bol'shoy Annachag Range. (Kharakteristika mikrobnykh soobshchestv i biologicheskaia aktivnost' pochv gornoĭ tundry khrebta Bol'shoĭ Annachag).
Kulichevskaia, I.S., Gornye tundry Khrebta Bol'shoĭ Annachag (verkhov'e Kolymy) (Alpine tundras of the Bol'shoy Annachag Range (upper course of the Kolyma River)) edited by D.I. Berman and V.L. Kontrimavichus, Vladivostok, 1980, p.68-77, In Russian. 14 refs.
Alpine tundra, Cryogenic soils, Soil microbiology, Seasonal variations.

35-4337
Alpine tundra vegetation on southeastern spurs of the Bol'shoy Annachag Range. (Flora gornykh tundr iugovostochnykh otrogov khrebta Bol'shoĭ Annachag).
Khokhriakov, A.P., Gornye tundry Khrebta Bol'shoĭ Annachag (verkhov'e Kolymy) (Alpine tundras of the Bol'shoy Annachag Range (upper course of the Kolyma River)) edited by D.I. Berman and V.L. Kontrimavichus, Vladivostok, 1980, p.78-92, In Russian.
Alpine tundra, Vegetation, Plant ecology.

35-4338
Alpine tundra vegetation in the Bol'shoy Annachag Range. (Gornotundrovaia rastitel'nost' khrebta Bol'shoĭ Annachag).
Dokuchaeva, V.B., Gornye tundry Khrebta Bol'shoĭ Annachag (verkhov'e Kolymy) (Alpine tundras of the Bol'shoy Annachag Range (upper course of the Kolyma River)) edited by D.I. Berman and V.L. Kontrimavichus, Vladivostok, 1980, p.93-109, In Russian. 11 refs
Alpine tundra, Vegetation, Landscape types, Plant ecology.

35-4339
Snow conditions in Bavaria; with maps of the Bavarian Alps and subalpine region. (Schneeverhältnisse in Bayern, mit einem Kartenanhang der bayerischen Alpen und des Alpenvorraumes).
Herb, H., *Bavaria Landesstelle für Gewässerkunde. Schriftenreihe*, Dec. 1973, No 12, 93p + 11 maps, In German.
Snow cover distribution, Snow depth, Snowfall, Seasonal variations, Mountains, Altitude, Maps, Statistical analysis.

35-4340
Lakes on George VI Ice Shelf, Antarctica.
Reynolds, J.M., *Polar record*, May 1981, 20(128), p.425-432, 15 refs.
Ice melting, Meltwater, Lakes.
The reasons why melt-water lakes on George VI Ice Shelf form where they do are related to three criteria: mean annual air temperatures in the range -5 to -10C, accumulation rates less than 0.2 Mg/sq.m./yr, and restricted surface drainage and low surface permeability. These criteria may be equally applicable in areas other than George VI Ice Shelf. Two superimposed patterns of meltwater lakes may be distinguished on George VI Ice Shelf. The principal pattern mirrors flowlines on the ice. The first set of lakes is intersected by a second which lies parallel to the prevailing wind and so is thought to be wind induced. Well established lakes tend to be self-perpetuating. (Auth.)

35-4341
Origin of water feeding icings on the eastern North Slope of Alaska.
Hall, D.K., et al, *Polar record*, May 1981, 20(128), p.433-438, 16 refs.
Roswell, C.
Pingos, River ice, Water flow, Springs (water), Geological faults, United States—Alaska—North Slope.

35-4342
Field experiments on antarctic tabular icebergs.
Kristensen, M., et al, *Polar record*, May 1981, 20(128), p.445-448, 5 refs.
Orheim, O., Wadhams, P.
Icebergs, Ice mechanics, South Sandwich Islands.
It is well known that tabular icebergs breaking off Antarctic ice shelves quickly deteriorate when they move near the Antarctic Convergence. Some of this deterioration can be explained by lateral and bottom melting of the icebergs, and by localized calving of overhanging cliffs along their sides, but the principal mechanisms by which tabular icebergs break up are not fully understood. To investigate some of the problems, the authors organized an expedition to the South Atlantic during the 1980-81 summer season to study the dynamical behaviour of tabular icebergs in response to the sea state. Three tabular bergs were found, boarded, and measured with strain-meters, a tiltmeter, a current meter (rotation), and a vertical accelerometer (heave). Preliminary results are reported. (Auth. mod.)